Southern Flight

25 Cents

MARCH 1941

LIBRARY OF CONGRESS
MAR 15 1941
PERIODICAL DIVISION

OFFICIAL PHOTOGRAPH, U. S. ARMY AIR CORPS

DEPENDABLE POWER HELPS TRAIN ARMY PILOTS

Hand picked cadets from all over the nation are earning their wings in the greatest pilot training program in U. S. Army Air Corps history. To power both basic and advanced trainers, Pratt & Whitney is supplying thousands of Wasp Jr. and Wasp engines. From them, these cadets are getting their first feel of dependable Pratt & Whitney power.

PRATT & WHITNEY AIRCRAFT
EAST HARTFORD, CONNECTICUT
ONE OF THE THREE DIVISIONS OF UNITED AIRCRAFT CORPORATION

★★★ IN THE FRONT OF OUR AIR DEFENSE ★★★

For Fleetness in Flight

In the Army's famed fighter planes — the Bell Airacobra, the Lockheed P-38 Interceptor and the Curtiss P-40 — there's an Allison liquid-cooled engine whose in-line design helps make them the fast, fit fighters they are.

This advanced air power is the product of the American Aircraft Industry in collaboration with the U. S. Army—both pledged to the duty of arming us best.

Allison

LIQUID-COOLED AIRCRAFT ENGINES

GM GENERAL MOTORS

DIVISION OF GENERAL MOTORS

IMPORTANT NEWS about—AVIATION RADIO

Right—MODEL BR3
AIRCRAFT RECEIVER
$44.50

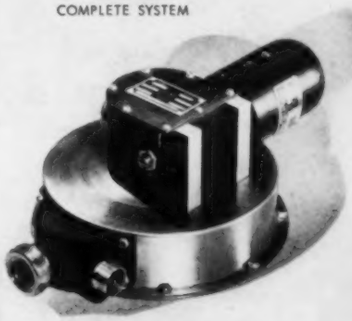
Below—MODEL BR3-T
RECEIVER-TRANSMITTER
WITH BATTERY CASE
$99.50

MODEL CT-2
AIRCRAFT TRANSMITTER
$245.00

MODEL UHR-140A, ULTRA HIGH
AIRCRAFT RECEIVER
$475.00

MODEL UHT-140G
ULTRA HIGH
GROUND STATION TRANSMITTER
$625.00

Below—MODEL AR-12
AUTOMATIC ANTENNA REEL
PART OF 12 OR 24 VOLT AUTOMATIC ANTENNA SYSTEM
$325.00
COMPLETE SYSTEM



MODEL UHR-140G, ULTRA HIGH
GROUND STATION RECEIVER $540.00

☆ **Air Associates announces a complete line of aviation radio equipment *of its own manufacture* ★ It makes this claim concerning it . . . that it represents a down-to-earth approach to the problem of radio engineering, construction and performance. An approach based on our belief that better radio equipment could be built to sell for less ★ You'll find it light in weight, easy to install, economical to maintain—and built to give you long service under the toughest operating conditions ★ Air Associates invites you to *see* this radio equipment—to *compare* it, part for part, with any other you can buy, at any price. We back it with the reputation of this long-established company . . . and without hesitation we'll stake our radio future on your judgment of it.**

Space limitations prevent illustrating more than a few representative types of equipment. For complete information, write for Folder ER1 for Light Plane Equipment, ER2 for Long Range Equipment, ER3 for Ultra-High Equipment, ER4 for Interphone Systems.

AIR ASSOCIATES INC.

AIR ASSOCIATES, INC.

BENDIX, NEW JERSEY

Branch plants at GLENDALE, CALIF. • • • • CHICAGO, ILL. • DALLAS, TEXAS

Pioneer Precision

A Pioneer instrument gear has to be more accurate than many a watch-gear (a watch operates in only *one* direction, always under spring load). Here's a typical gear inspection, on a Micrograph Comparator—a 200-diameter magnification that makes a fine pencil mark seem 2 inches wide!

Again! New plant facilities to answer America's call for more Pioneer Instruments!

Only a few weeks ago, you read of a vast expansion of Pioneer's precision manufacturing facilities into a modern, air-conditioned Bendix plant in Philadelphia. Even in that brief time, the "growing-pains" of our nation's march toward impregnable defense have necessitated additional Pioneer facilities in still other cities!

Pioneer precision must not, and will not fail either America's defense forces or America's air commerce. Pioneer Aircraft Instruments are being produced in greater and greater quantities, and as carefully as ever—which means as carefully as is humanly possible.

Pioneer Sensitive Altimeter

Pioneer INSTRUMENT

DIVISION OF BENDIX AVIATION CORPORATION

BENDIX, NEW JERSEY, U. S. A.

REVVING UP

En route to the Air Transport Association's engineering and maintenance conference at Brownsville, February 3, 4, 5 and 6, we stopped by for a visit with Capt. Bill Nuckols, public relations officer at Randolph Field. We told him about some interesting figures we uncovered recently on the subject of safety in military training. In one of the civilian schools providing primary training for the Air Corps, one fatality had been registered out of 70,000 hours of instruction and the boy that bumped himself off was cutting capers at the time. At Issodoun in France during World War No. 1, American pilots received 25,000 hours of instruction and over 500 were killed. Bill advised that the one out of 70,000 was about the percentage at Randolph. So the next time you hear cagey parents complain they don't want their boy to go into military training because it isn't safe, you can laugh out loud at their ignorance. 70,000 hours on a mileage basis, say at 100 miles per hour, would be 7,000,000 miles you'd have to go before it came your turn. That's safer than highway travel!

* * *

At Randolph Field, 350 airplanes in the ozone at one time is termed "routine". An average of seven landings and seven take-offs are made every minute of the day. It is estimated that in one day's flying the 850 flying cadets make 3,400 landings and take-offs. Our idea is to build all airports on the same plan—landing area on all four sides with the building area in the middle—as at Randolph. That should simplify traffic movements and eliminate hazards of concentrated traffic. If they can control that much traffic at Randolph, why isn't it feasible elsewhere?

In January a new all-time record for flying time was set at Randolph when cadets flew 27,807 hours, or 3,915,000 miles, a distance equal to 156 trips around the world at the equator.

* * *

Good news concerning the rapid recuperation of Jim (Sheepherder) Griffin, ace press agent of Lockheed, who has been on a leave of absence for the past couple of months due to illness, has been received at ranch headquarters. "Ba-a-a-a-a-a-" Griffin is not only fast on the road to recovery but looks more like a sheepherder than ever as the accompanying photograph bears out.

(Continued on page 29)

Southern Flight

The only complete monthly digest of aeronautics in the South and Southwest

MARCH, 1941 **VOL. XV, NO. 3**

CONTENTS

SPECIAL FEATURES

Regulation For Charter Operators—by Tom Park 8

Bombers From Mid-America—by George E. Haddaway . . . 10

Will They Be Trained or Trimmed?—by Milton F. Baldwin . . . 12

Electrolytic Template Process 23

REGULAR FEATURES

Just Among Ourselves—Editorial Comment 6

The Sky's the Limit—by Bill Green 14

What's New—Air Associates' Aircraft Radios; 1941 Stinson Voyager; 1941 Taylorcraft Trainer; 1941 Piper Models . . . 16

In Your Industry—News of the Month in Review 24

Ports of Call—Correspondence from the Airports and Airways . 30

Classified and Directory Advertising 34

GEORGE E. HADDAWAY - - - - - - *Editor*
R. T. GIDLEY - - - - - - - *Business Manager*
WELDON M. McKINNEY - - - - *Circulation Manager*

Contributing Editors:

BILL GREEN TOM ASHLEY JACK STORY
LARRY FISHER

Published Monthly by

AIR REVIEW PUBLISHING CORPORATION

P. O. Box 750 (1901 McKinney Ave.), Dallas, Texas

SUBSCRIPTIONS—United States and possessions, Latin-American countries and Spain: One year $2.00, two years $3.00. Canada and Newfoundland, $2.50 a year. Other foreign countries, $3.00 a year.

Established February, 1934. Entered as second-class matter at the Post Office, Dallas, Texas, under act of March 3, 1879.

Just Among Ourselves

STATE REGULATION

EVERY now and then some monkey gets up in a State legislature and introduces a bill to regulate aviation. Most of them are like the bewhiskered old legislator we heard some years ago, holding forth on the necessity of state laws governing aircraft, who yelled to the top of his voice: "We got to do something about this awful situation! Why, these airplanes are hurtling through the air with the speed of a cannon ball—sixty miles an hour—and there's no telling when they'll fall from the sky!"

Already aviation is being held back in many States because of State regulation of aeronautics. You can count on the fingers of one hand the number of States having aviation legislation together with intelligent administration where the airplane and airmen as well as the general public are being benefited. If the trend continues, every State will have a different set of laws governing flight and the Nation will be as balkanized in the air as it is in surface transportation. When that time comes you can count on the airplane, which should know no borders, to lose a great portion of its utility as well as economy of operation.

Texas airmen are wrought up over a bill introduced last month in the State House of Representatives, asking for the creation of an aviation commission, providing for the licensing of airports, landing fields, schools, flying clubs, owners of air beacons and navigational facilities (this shot got us!) and making it illegal for any aircraft to land upon or take off from any area other than an airport. Airport licenses would cost $20, school licenses $200 on an annual basis. The commission would be empowered to concoct most any law it sees fit to regulate aeronautics within the State.

Another bill introduced in Texas would return the 4c per gallon gas tax directly and only to government (municipal, county and Federal) operated airports—not to the users as practiced now. Tax free aviation gas in Texas has been no small factor in aviation's healthy growth within the State borders.

We don't think either bill will get through. Fortunately, the private flying interests of the State are banded together in a virile and progressive organization—the Texas Private Fliers' Association, which is affiliated with the national Private Fliers' Association. These interests believe that the public as well as aviation will best be served by enforcement of the present law on Texas statutes requiring Federal certification of aircraft and pilots. And through organization they are able to fight.

If State regulation and taxation of aeronautics is inevitable then there is no good reason why the aviation interests within each State shouldn't have something to do with the writing of the laws, instead of leaving regulation up to ignoramuses who have never been inside an airplane and aren't aware of the fact that Uncle Sam does a pretty good job of protecting the public interests. Here is a great opportunity for national aviation organizations to put their heads together in an attempt to work out uniform State aviation laws so that the airman flying in Maine will be for all practical purposes on the same basis as the airman in Arkansas. Aviation is expanding at such a rapid rate and has caught the public eye so suddenly, it represents fertile ground to the scheming tin horn politicians who are on a constant search for a chance to make more laws, seeking more sources for tax revenue, hunting more opportunities for creating political jobs for the kinfolks and for getting their greedy snouts into the public trough. Trouble is that the majority of people in aviation who are affected by discriminatory legislation want someone else to fight their battles for them, and the sturdy little handful who carries the torch can't always cope with the conniving, backstage operations of the average web-footed legislature.

If the Texas Private Fliers' Association is successful in its fight against this ill-begotten proposed legislation, it should be an inspiration for the aviation interests in all States to follow the example. There will be a hundred thousand certificated pilots later on this year, thanks to the Civilian Pilot Training Program. A hundred thousand of any breed ain't hay, whether it's welders, boy scouts, war veterans or pullman porters—especially in the present game of domestic politics.

A JOB WELL DONE

ANY survey of military aviation progress during 1940 will reveal that one of the most outstanding accomplishments ever chalked up by any one department for a calendar year was achieved by the Army Air Corps' materiel division at Wright Field, Dayton, Ohio. Space doesn't permit a review of all the progress made at Wright Field, but a few examples will illustrate our point.

While Air Corps purchases shattered all previous years ($1,629,231,331 in the first eleven months of 1940), the contract section found time to work out a system whereby orders can be placed as soon as funds are appropriated, eliminating the old time-consuming practices that made dealing with the Air Corps a burden and a trial. This section also set up four streamlined methods of financing new plants required for additional orders.

The product engineering branch put into effect a program to modernize and simplify aircraft design. Armor plate, leak-proof fuel tanks and fuel systems have been developed, additional guns with larger calibers and increased firing rapidity have been installed, and power turrets have been adopted for bombardment type airplanes. One of the greatest steps forward was the work towards standardization of Army and Navy specificatons and equipment, accomplished through the preparation and promulgation of single specifications, usable by both services without modification. More is to be done to remove this bane of the military manufacturer's existence. Inauguration of co-operative measures between the Air Corps and the automotive industry, industrial planning and a regional inspection service have been put into effect.

The experimental engineering section's activities ran the accelerated gamut from design studies of radically new stuff, through the problems of flutter and vibration, aerial photography, laboratory pressure chambers in the study of high altitude flight, radio, engine, flight and navigation instrument improvements, servicing and maintenance standardization and simplification, mobile repair units, portable steel mats for rapid laying of runways on soggy fields, new propeller designs and methods of fabrication, the development of synthetic materials as substitutes for those which might be difficult to get in time of war—just to name a few of the major projects.

A new engine test laboratory is nearing completion at

(Continued on page 22)

Skill

FOR AMERICA'S DEFENSE

Machinists in the making—quick to learn, eager . . . much of the future security of America depends on these young men who are building their success around the sound lesson of coordinated hand and mind.

The skill of Wright's thousands of "old timers," painstakingly acquired through many years of service to the aviation industry, is being transfused into young America to give greater strength and new vitality to industrial progress and to National Defense.

Wright Aeronautical Corporation, Paterson, New Jersey
A Division of Curtiss-Wright Corporation

Concurrent with its training program, Wright has increased its production to more than 1,100,000 H. P. per month, will double this figure in 1941.

WRIGHT
Aircraft **ENGINES**

REGULATIONS FOR
Charter Operators

You can expect more stringent requirements governing charter operations in the near future. Present minimum standards are far too low and the safety figures are nothing to brag about

By TOM PARK

EVERY form of transportation carrying fare-paying passengers in interstate commerce sooner or later comes in for Federal regulation. Next on the list for regulatory discipline from Uncle Sam is the airplane charter operator. The days of "laissez-faire", of every operator doing just about what he desires in whatever equipment he has at hand, are numbered.

It's nothing to get alarmed about. It's the inevitable and if we look upon it as an index of growth and seriously study the entire situation, facing the issue squarely, the charter operator himself may have a hand in forming the regulations that are bound to come. We don't believe there will be any attempt to shove back-breaking regulations down the operator's throat nor will it be done overnight. Rather, there will be a gradual stiffening of minimum requirements so that within a few years, there will be developed a sound set of regulations in the interest of public safety. Let's look into the probable trend this action will take.

The most comprehensive approach to charter regulation is provided by Jerome Lederer, chief of the Civil Air Board's Safety Bureau, in a report to the national safety council, which sums up his own personal recommendations after making a studious and intelligent analysis of the field and what is required. We think that from his recommendations will come the ultimate set of rules that will provide the federal regulation of charter services.

In general, his proposals cover certain fundamentals which should be the basis of regulations, specifying that every flight undertaken for charter purposes should have a written clearance to show: That a responsible mechanic certified that the airplane and its accessories were in airworthy condition shortly before take-off; that the pilot was competent to make the flight (plenty of cross-country experience, etc.); that the airplane was adequately equipped with accessories and supplied with fuel, oil, maps and other necessary materials; that the weather conditions were good enough to assure successful completion of the flight, taking into consideration the kind of flying equipment and the pilot's experience; that the airplane was correctly loaded and that passengers were not in such condition as to interfere with the flight; that the flight was approved and cleared by a responsible person in the organization (definite flight plan); that, where emergency flights must be undertaken, through hazardous conditions, the passenger is informed and agrees in writing to undergo them.

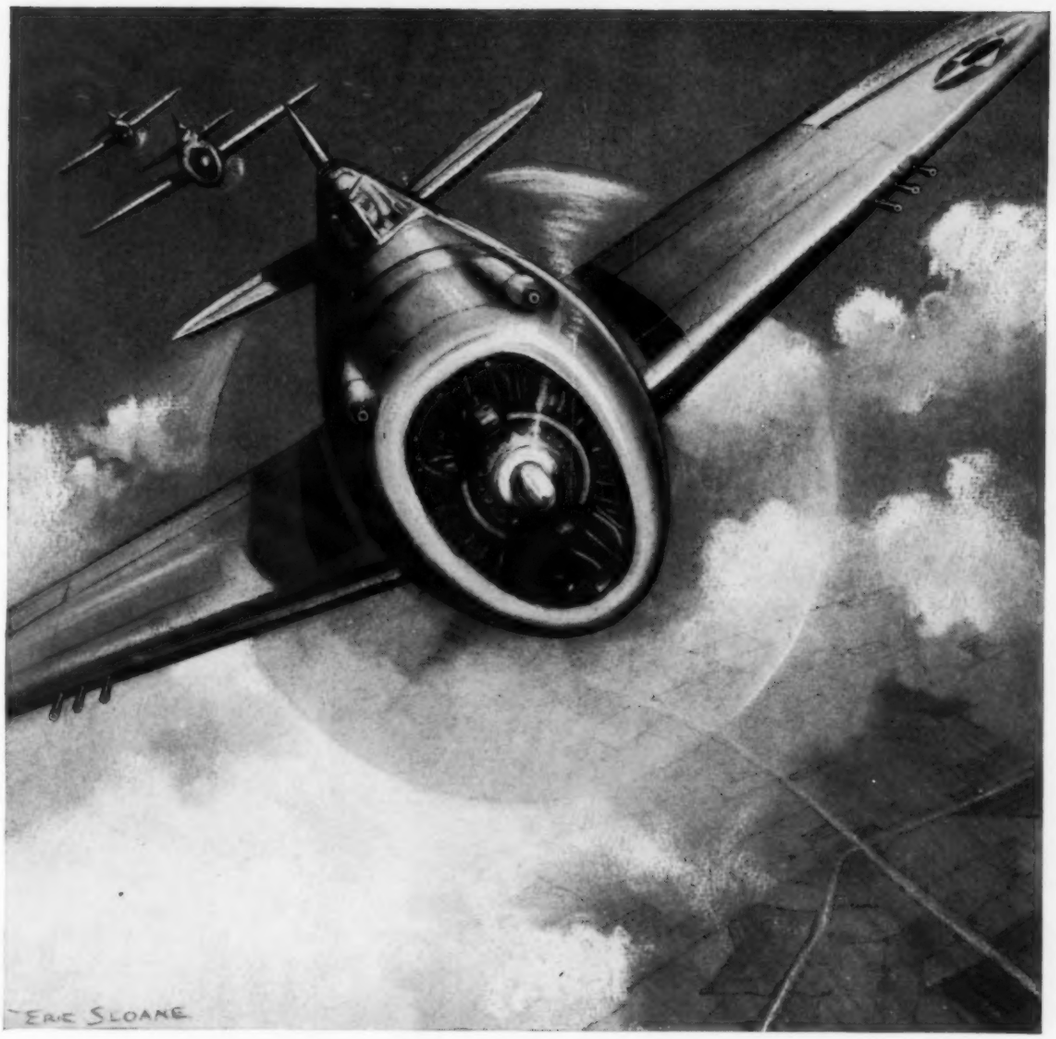
WITH these fundamentals in mind, a consideration of more specific procedures would include certain minimum requirements for aircraft, flight equipment, pilots, insurance, operations, published rates, maintenance and inspection. Several years ago one of the States issued approval certificates and privileges to charter operators who fulfilled certain minimum qualifications. However, one of the best sets of rules may be found in the following stipulations under which a very successful charter service operated with an excellent safety record:

FLIGHT RULES: (a) Pilot shall obtain all available weather information along proposed route before taking off. (b) No flights with passengers shall be made unless latest reports indicate a minimum ceiling of 1,000 feet (1,500 feet for night flights) and minimum visibility of 3 miles, with no probability of icing conditions, with conditions steady or improving throughout the line of flight. (c) Pilots holding NSIR or SAT instrument ratings, and no others, may make intentional instrument flights with passengers, under conditions in (b) above if planes are equipped with sensitive altimeter and radio transmitter. They may make *contact*, but not intentional instrument, flights in conditions less favorable than in (b) above, within limits agreed upon by Operator and ACS. (d) The above conditions shall not apply to emergencies, when qualified pilots may go on instruments, but no take-offs shall be made unless conditions are within those in (b). (e) Pilot shall fill out a flight plan for all cross-country flights before take-off. One shall be filed with field management when possible, and with own office or other responsible person in other cases. File PX when practical, or required. (f) Make necessary intermediate stops to insure reserve at destination of one hour's fuel in clear weather, two hours in other. (g) Check ignition and motor R. P. M. before each take-off. (h) Fasten all occupied seat belts before take-off or landing. (i) Night flights only between lighted airports not more than 50 miles from lighted airways. (j) No flying more than 10 miles from shore, seaplanes not more than 10 miles from water suitable for alighting, and not more than 10 miles from shore. (k) No flying more than 100 miles beyond the boundaries of the United States. (l) Either Operator or Pilot shall cancel flight if either regards conditions as unsuitable for the flight contemplated. (m) All Federal, State and Municipal rules shall be observed.

FLYING PRACTICE: Treat passengers courteously, follow their wishes as to heat, ventilation, and altitude and other matters, provided their requests do not interfere with safe operation or are contrary to these rules. Descend gradually, avoid steep banks, and avoid rough air, even though some ground speed is lost in doing so.

PLANES AND ACCESSORIES: Shall be modern cabin planes with night and blind flying equipment, and with

(Continued on page 34)



REPUBLIC AVIATION

POWER AT WORK . . . The rocket-like speed and fine all-round performance of Republic Aviation Pursuit-Interceptors demonstrate the value of design principles which successfully utilize the tremendous power-output of America's great air-cooled radial engines—unmatched in efficiency at high altitudes...unfaltering in service for extended intervals between overhauls. Holders of the largest single order for fighter aircraft ever awarded by the U. S. Army Air Corps, Republic Aviation Corporation is ready for today's job—and tomorrow's.

REPUBLIC AVIATION

REPUBLIC AVIATION CORPORATION
FARMINGDALE, LONG ISLAND, NEW YORK, U. S. A.

Five views of the Consolidated B-24 four-engine, 40,000-pound bombardment type airplane to be assembled by Consolidated in an Army-owned factory at Fort Worth, Texas. The Ford Motor Company will manufacture sub-assemblies for this model.

This is the first in a series of feature articles describing these four huge bomber assembly plants: Consolidated Aircraft, at Fort Worth; Douglas Aircraft, at Tulsa; North American Aviation, at Kansas City; Glenn L. Martin, at Omaha. This bomber program — one of the most significant phases of the national defense effort—requires production of parts by the automobile industry for 15 bombers daily, with assembly under complete direction of the airplane manufacturers. Each plant will probably use 10,000 to 15,000 employes. This month's feature deals with Consolidated Aircraft Corporation's B-24 production in a new plant to be built on the shores of Lake Worth, near Fort Worth, Texas.

BOMBERS

"WAR BABIES" or not, the four great bomber assembly plants to be constructed in Mid-America this spring and summer should bear out the rational contention of many experts who for years clamored loud and long for the decentralization of our aircraft manufacturing industry—the moving inland and spreading out of new plants to escape the danger of enemy bombardment along the vulnerable coast lines where today the bulk of aeronautical manufacturing, from airplanes and engines, to propellers and instruments, cannot enjoy the immunity provided by mother nature in the great central intermountain area of the United States.

The first of the new bomber assembly projects to get under way will be Consolidated's $10,000,000 plant on the shores of Lake Worth, near Ft. Worth, Texas. The district U. S. Army engineer's office announced in February that it has been allocated funds for construction of the plant and that work will start just as soon as Consolidated signs a production contract with the War Department and indicates the exact type of plant desired.

The city of Ft. Worth is preparing a $3,000,000 bond issue for the purchase of land, construction of a land and seaplane base at the factory site and for the improvement of roads leading to the factory. So the preliminary work is practically complete and the first B-24 assembled at the new plant should roll off the line before the end of this year.

Consolidated's B-24 is an all metal, full cantilever monoplane, powered with four Pratt and Whitney twin-row radial air-cooled engines providing 4,800 horsepower. It employs retractable tricycle landing gear, Fowler flaps inboard of the ailerons, Davis airfoil wings, and full cantilever tail surfaces. Approximate gross weight is 40,000 pounds, wing span 110 feet, length 64 feet and height 19. Normal crew is from six to nine depending upon its mission.

While the performance figures are strictly confidential, an official release stated: "This airplane, from preliminary investigations, gives evidence of living up to the advancements in aerodynamics and performance predicted. These include a speed of over 300 miles per hour, a range of approximately 3,000 miles, and a bomb-carrying capacity of approximately 4 tons." Their speed, and defense attack armament give them adequate protection from all angles.

From its inception to the maiden flight, the B-24 was just nine months in the building . . . a record for craft of this size and an indication of the design, engineering and manufacturing co-ordination achieved by Consolidated. The prototype, the XB-24, made its first flight in December, 1939. Just last month, the first of twenty-six B-24's, originally ordered for the Air Corps but trans-

ferred to Britain, took off from Lindbergh Field, San Diego, on the first leg of a delivery flight to England.

Also significant is the fact that the B-24 will be the first model built under the army-automotive-airmotive production program. The Ford Motor Company has agreed to produce the sub-assemblies at its River Rouge plant, shipping the fabricated units to the Ft. Worth plant for assembly. Ford will also build sub-assemblies for the Tulsa bomber assembly plant to be operated by Douglas Aircraft Company, who will also build the B-24 under special license.

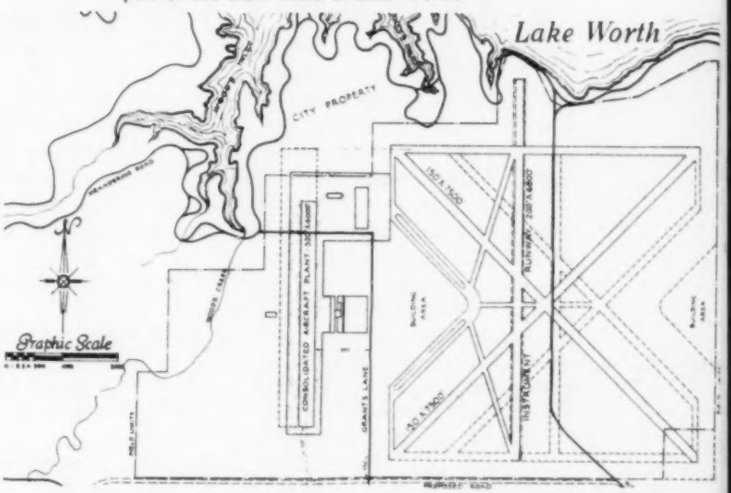
CONSOLIDATED'S huge land bomber ideally demonstrates the fundamental design principle that maximum efficiency is attained when the smallest possible airplane is used for a given job. A plane designed five years ago to have the great range and load-carrying ability of the B-24 would have been at least 50 per cent larger, with a commensurate decrease in high speed. This has been overcome through the rapid strides made in engineering and research during the past few years. The B-24 admirably lives up to the truism expressed by Major Gen. H. H. Arnold, chief of the U. S. Army Air Corps, that "bombers must have more range, for if they cannot reach the theater of war they are of no value".

It is extremely adaptable to quantity production. It uses the same wing, the same tail group, and the same flaps as those used on the Consolidated flying boats that have been into production for the Navy and Great Britain for many months. Consolidated's years of valuable experience garnered from the building of thousands of smaller land planes, and the advanced manufacturing methods evolved in the production of large flying boats, have been poured into this powerful new bomber.

When the Ft. Worth plant production is coupled with that of Consolidated's expanded San Diego factory, a po-

navigation equipment, radio that can be heard both ways throughout their entire range, bombs of all sizes and also torpedoes, the finest bomb sighting equipment, full armament to protect themselves, crews of 10 or more trained persons, and supplies for such crews sufficient for as much as 30 hours with no opportunity to replenish . . . " His employes are now turning out such equipment. The company's present $325,000,000 backlog is the green signal to proceed with production as fast as humanly possible. And the Fort Worth bomber assembly plant, to be built by Uncle Sam, operated by Consolidated and furnished sub-assemblies by Henry Ford, will be a vital link in the unprecedented production chain.

Layout of the Fort Worth bomber site and the new industrial airport on the south shore of Lake Worth.



From MID-AMERICA

tential production rate of 300 airplanes per month is predicted by certain officials, a phenomenal figure for this type of aircraft. With that kind of production we won't be very long in providing the quantities and types of airplanes necessary for our airpower plans. It isn't difficult to understand when one considers that the San Diego plant alone has been increased in size by some 10 times over its original 1935 facilities—over 1,000 per cent in five years!

THE design and construction details of the Fort Worth plant are not available at this writing. However, something of the scope of the home plant together with the total size of the company's operations upon completion of the Fort Worth project sheds additional light on Consolidated's growth. A new parts plant at the San Diego factory of 1,550,000 square feet is about complete. When operating at full production, Consolidated will have a total of more than 30,000 employes with a payroll of about $5,000,000 a month.

At the turn of this new year, Consolidated's president, Major Reuben H. Fleet, in a prepared statement to his company's 15,000 employes said: "Aircraft such as we manufacture are not obtainable from the shelf at any price. They are the largest battleships that fly the heavens. Their non-stop range must be a continent, or an ocean like the Atlantic. They must carry the most complicated

Major Reuben H. Fleet, president, Consolidated Aircraft Corporation. The company will reach its 17th anniversary next May, and ever since its inception the six-foot Major has been in the pilot's seat as president.

TRAINED or TRIMMED?

There are scores of excellent commercial mechanic schools—and scores of "gyp" outfits. How can YOU select a school that will give you sound training instead of a trimming? This and the April article will guide you safely.

By
MILTON F. BALDWIN

I'VE stood on the banks of the Rhine when that historic stream flashed sparkling and clear. But I've watched it too at flood-tide, when those coffee-brown waters sped sullenly beneath a debasing burden of flotsam and filth.

The aviation industry is at flood-tide. Skilled mechanics are needed. Some are being trained in factory schools. A few public technical schools are training aircraft mechanics and the government's newly established defense schools will be furnishing an increasing quota of mechanics.

Most of the first-class commercial mechanic schools have heavy current enrollments. Their courses are sufficiently long to insure adequate training. Which means that the output, though high in quality, cannot satisfy the aircraft factories' demands as to quantity.

So—like the Rhine—aviation's flood-tide is sweeping along upon its crest an increment of dangerous flotsam, shaping up as clearly dishonest or merely worthless "schools."

"Will This Yield Me a Job?"

If you plan to enroll in a mechanic school, you want conclusive evidence on just one all-important question: "Will this course qualify me to get and hold an airplane mechanic's job?" Open-minded investigation will yield you a dependable answer. But allow me, after several weeks' checking of good schools and bad, to suggest eight danger points that often identify the "gyp" organization.

Some weeks ago I requested information of a distant mechanic school. No mail arrived—only a salesman's phone call. I explained that I merely wished to examine the school's printed matter and check over the courses.

"No, we can't do that," he replied. "We want to qualify you first and make sure you meet our requirements. As soon as I have talked with you personally I'll answer all your questions."

Printing Is So Permanent!

I don't blame that salesman. He works on commission; and beyond doubt he's a high-powered persuader who "gets his man" along with a substantial down payment. Further, any enthusiastic overstatements he employs in the interview help cinch the sale—but are not recorded in cold printers' ink for the equally cold scrutiny of judge or jury. So you'll appreciate Warning No. 1:

Avoid any school which will not mail you its printed matter. A "gyp" operator's untruthful advertising makes him dread Federal mail-fraud charges like the plague.

What about salesmen? Some reputable schools employ bonded salesmen; other good schools don't use 'em at all. Here's a paragraph from the advertising of an excellent mechanic school which ten years ago ceased selling through salesmen:

"We don't believe you need any salesman to help you make your decision. We believe you are perfectly capable of doing this yourself. Because of this, we give you all the true facts about our training and leave it to you to decide."

Another high-grade organization comments thus in its catalog: "We . . . do not employ salesmen . . . We believe that through the medium of our literature we can best tell you the story of our school thoroughly and authentically. By this means you and your parents may, without coercion and without being rushed, carefully weigh the facts and make your own decision." And these viewpoints suggest Warning No. 2:

Select your school after leisurely consideration and only on the basis of its printed information. If a salesman calls, tell him his school's catalog, not his personal statements, will decide the issue. Then, make your own decision.

Said the Spider to the Fly

An operator I recently checked by telephone strongly urged me to inspect his school. Good salesmanship, of course. He could size me up and, if I appeared to have the down payment, high-pressure me into enrolling. Ten to one (he'd reason) I couldn't tell modern aircraft-build-

Want a List of Approved Mechanic Schools?

Then you'll want our April issue. With approvals secured from several dependable sources, this list should comprise the most comprehensive survey of reliable commercial schools which has ever been made available to the aviation industry.

ing machinery from junk! Swell for the "gyp" operator; but for you Warning No. 3:

Avoid personal inspection trips. First check the school by this article's eight warnings. If the outfit rates okay on every point, a personal visit would undoubtedly confirm your favorable opinion. But do that checking FIRST!

As for wages: When one student prospect asked about pay, the school operator replied, "George So-and-So, one of our graduates, is getting $35 a week right now"—the inference being that this was a starting figure. Actually, George had graduated some eight months ago, started on his job at 50 cents an hour, and had proved a good enough man to earn a number of wage increases.

Here are the unvarnished facts about aviation mechanics' wages and ages. Most aircraft plants start a new man (lacking previous plane-building experience) at 50 cents an hour, the minimum rate required by government contracts. From there on the man's income depends on his own efforts and skill. As for ages—most plants give preference to applicants between 18 and 31, except where they have had previous aircraft experience. Age makes a whale of a difference! So for Warning No. 4:

Mistrust the school which suggests $30-$35 wages or sidesteps consideration of the age question. Such a school is far more eager to enroll you than to give you what you expect for your money.

You know what Better Business Bureaus are: organizations set up by reputable business men to expose and prosecute the fraudulent fringe. But did you know that any Better Business Bureau will mail you, free, a report on the standing of any mechanic school situated in its community?

For example, the Better Business Bureau of Dallas has developed an extensive service on aviation-mechanic schools. It has published, for compliance by Dallas schools, a set of trade practice rules similar to those of the Massachusetts code which became law on January 1, 1941.

Every school in its area must submit a signed survey form covering its ownership, enrollment, instructors, equipment, working space, rates, etc., including permission for the Bureau to verify these statements by personal inspection. Through this program the Dallas Bureau can report authoritatively on all local schools.

It Took the Fun Out of Refunds!

The Better Business Bureau of Kansas City, Mo., is likewise campaigning against "gyp" schools. Its February 3 bulletin describes complaints registered by students against a local mechanic school extensively advertised by radio. To quote two paragraphs:

"The Better Business Bureau has recently had complaints from students who paid the advance fee, came to Kansas City, enrolled in the school, then found classes overcrowded or were otherwise dissatisfied. When they asked for their money back, the school refused to refund the $25 paid in advance.

"One boy was told the $25 was reserved for 'expenses in getting your birth certificate, Social Security number, fingerprints, photograph, and medical examination . . . ' This complainant had sent in his own birth certificate and had not received any of the other services listed."

These are random examples. Other Better Business Bureaus are doing fine work on this problem. So for Warning No. 5:

Don't enroll in any school without a favorable report from the local Better Business Bureau. Simply address the Better Business Bureau of that city and state; street address isn't necessary. This one checkup may save you considerable expense and wasted time.

No reputable mechanic school can or will guarantee you a job after graduating. But you could reach a safe conclusion by noting what had happened to any school's 1939 and 1940 graduates, couldn't you?

Hiring 'Em in a Big Way!

One very fine mechanic school, in operation more than 12 years, gives this specific information in its current school publication under the heading, "School Scores Usual Record Placement for Mechanic Graduates During 1939 and 1940—and This Is the School That Makes No Guarantee of Jobs!"

For 1939 it lists the number of master mechanics graduating during each of the 12 months (totaling 218), the month when employed, and the aircraft factory or airline hiring them. For 1940 it lists 365 graduates, giving each man's name and address, month of graduation, month employed, and firm employing him.

Not many commercial schools are sufficiently old and large to match these placement figures. But—like the rooster who nonchalantly rolled an ostrich egg into the hen party—it does show what can be done. Would you enroll in a school which was unable to produce placement

(Continued on page 28)

A SAFE YARDSTICK FOR MECHANIC SCHOOLS

When you enroll in a commercial airplane-mechanic school you're investing money. Get what you pay for—but make sure of that before you pay! A school which can qualify under these eight standards is probably safe to deal with.

1. Have printed matter sent you by mail. Possibility of mail-fraud charges doesn't haunt the reputable school.

2. Reach your own decision, with printed facts before you and no salesman present. Don't be a salesman's pushover!

3. Avoid a personal inspection trip, at least 'til all seven points are checked. Then you probably won't need it!

4. Does the school say you'll get $30-$35 on your first job, or that age makes no difference? Beware, beware!

5. Ask the Better Business Bureau about the school that interests you. Often this inquiry will save money and grief.

6. Request the school's 1940 record of placements. It tells a lot. Not available? Then you'd better not sign up!

7. Check the number, education, experience of instructors. After all, what else is a mechanic school composed of?

8. Verify the school's operating age. You want to buy expertly administered instruction instead of growing-pains!

THE Sky's the Limit

BY BILL GREEN

Navigation and weather as factors in instrument flying . . . Two books we heartily recommend . . . Is Labor patriotic? . . . Crash at El Paso

Navigation, Weather, and Instrument Flying

A READER from Savannah, Georgia, asks us to elaborate on the piece we did last month concerning instrument flying, in hopes that we can further impress upon all pilots the necessity for continuous instrument training if they intend to engage in instrument flying. Some people have the idea that if you get caught in fog all you have to do is to consult your instruments and go on through. Unfortunately it takes more than an instrument rating and occasional consultation with instruments to get the job done. The awful toll of human life through years past stands as testimony to the fact.

Several years ago, I did my first instrument work, and at that time my instructor advised me to get a copy of a book by Crane and Ocker, which I did and which was very useful to me in getting my fundamentals of instrument flying. Since then, I have done a lot of studying on instrument flight, including considerable time on a Link trainer and a lot of hours under the hood. It is quite possible that if I had learned originally on instruments I would feel no compunction at going on instruments under normal flight conditions. However, in spite of the fact that I deal with instruments all the time in my business and have all the faith in the world in them, I have never felt entirely happy on instruments in an airplane, whether I was flying or whether someone else was doing it. The problem is not so much of how to handle the airplane on instruments. It is the problem of navigation and the problem of weather when you get there.

Having been taught by a pilot to believe implicity in the "seat of the pants" theory, the first time I got under the hood in an airplane I was in a spin twice within five minutes. After that, I gradually developed a complete ability to fly almost naturally and practically without any abnormal strain when on instruments under the hood. I never expected to use instrument flying except for getting myself out of a jam if I unwittingly stuck my neck into it. That is perhaps a bad psychology. One day, with my instrument instructor, I was flying from New Orleans to Houston. There were a few scattered high clouds, but the weather looked good in every direction, as far as we could see. After about an hour of flying the beam toward Houston, I noticed that my instructor stuck his head under the hood two or three times to check the instruments. He seldom did this, except to see whether I had the gyro caged or whether I was using it to correct my turn. He did not like for me to use the gyro at all. By that time, I was tired of flying on instruments, so I pulled the hood down and found that I was actually on instruments and could not even see the wing tips. That surprised me so much that I immediately went into a spin, but instantly recovered, inasmuch as he had taught me very well how to recover from practically any maneuver on instruments.

The danger that an inexperienced pilot has when he goes on instruments suddenly is not so much that he will get into some maneuver from which he can not recover, but it is the fact that he might be close to the ground or close to some obstruction where precision flying is required and normally it is impossible to do precision instrument flying unless you are accustomed to it as a normal practice. After I have been on instruments for five minutes or more I usually settle down and do a fair job of flying, but those first five minutes can get one into very serious difficulties. Most people who go on instruments, without definitely having laid their plans in advance, do so because they have been forced lower and lower and finally have to go on instruments because there is nothing else to do, there being no convenient place to land. I feel fairly certain that going on instruments close to the ground is a serious hazard for any person who is not regularly doing instrument work.

I mastered the art of instrument flying to such an extent that on several abnormally rough days I have been able to make perfect approaches along the beam and work problems for instrument landings. However, on several occasions, both in the air and in the Link trainer, when something went wrong with the radio equipment or when the operator came on with voice or weather data, I succeeded in getting myself lost to such an extent that I had to work an orientation problem. In rough air and under conditions of poor radio reception this can well be fatal and in fact, has been, I think, fatal even to some airliners. Inasmuch as the problem of working out the actual orientation situation and, at the same time keeping the ship on an even keel, requires just about all that the novice can do. I feel that the navigation part of instrument flying is ten times as important as the ability to simply keep the ship on an even keel and headed in the desired direction. It would be very much easier, if one had an experienced co-pilot, who would do all the messing with the radio and navigation problems and simply tell the pilot what to do.

Most anyone could, after ten or fifteen minutes' instruction, pilot an airplane on instruments along a straight line or in some gentle turn for a short time. However, in flying for example, from Tulsa to Los Angeles, assuming one had the equipment to do it non-stop, would require about eight or nine orientation problems, which would have to be in the process of being worked almost continuously. Provided one had all the information in advance, this might be duck soup. However, the weather, the wind and even the government, plus, of course, all your own mistakes, enter into the problem. In spite of purchasing the latest aeronautical charts, we frequently find that the legs of a beam have been shifted and that the side marked

"N" is now actually the "A" quadrant, etc. That, coupled with the fact that the frequencies of the different beams have been shifted off and on every few months for several years, and the fact that sometimes you are following one beam and under orders from the Airways Traffic Control to keep in communication with some other station, really keeps you busy.

My Beechcraft is equipped with almost every blind flying instrument except the gyro pilot. However, I have found when I get in a tight spot, I always come back to the turn and bank indicator. I have a ADF-6 automatic direction finder, and I have found that it is a very nice instrument for blind instrument work. The fact that it can be turned to a certain predetermined station before you even leave the ground allows you to orient yourself very easily during the entire flight. I am surprised that all airlines and charter operators have not installed these instruments. I would also urge that the government put automatic direction finders on all their observation and bombing ships, as well as their transports. When a pilot is on instruments, as you well know he has his hands full, and if by the simple expedient of turning a knob on his radio set, he can tell exactly where certain transmitting stations are at a glance, it relieves him of considerable mental strain. Not long ago, a navy transport flying some men who had already had a forced landing (a previous navigation accident) crashed into a mountain side near San Diego, California, with the loss of the ship and all the men.

I have flown that beam into San Diego and know that there are about twenty or thirty fake cones of silence over the mountains this side of the beam station. I have a feeling that this pilot thought he was over the cone of silence and started letting down. Of course, he could have checked himself by the ordinary orientation procedure, but apparently, he was so sure of himself that he did not do that. The nice thing about the automatic direction finder is that when you pass the cone of silence, the needle starts around to reverse itself. Two or three times, while in normal flight, but while using the automatic direction finder, I have had the normal volume build up and then get something that appeared to be a cone of silence, which was not, and in spite of myself, I have always wondered what happened. However, the ADF continued to point steadfastly forward, thus reassuring me. I have been over Pittsburgh five times on instruments on cloudless days and have never yet seen the city, and feel that the ADF was the only thing on which I was really depending to get myself through several hundred miles of smoke. On one occasion, although previous weather reports had been good, I found myself between Pittsburgh and Columbus not on the beam and with the smoke turning smog, and in fact, it later became a snowstorm. I arrived over Columbus by using the ADF on the Columbus control tower when visibility was about one mile on account of snow. Again the ADF came to my rescue.

So it goes with my instrument flying experiences upon which I base my theories. There are so many unknown quantities involved that a mere familiarity with flight instruments and a smattering of instrument training just isn't enough to get the job done.

Speaking of New Books

ONE of the finest publications we have ever seen for the average young pilot is Civil Aeronautics Bulletin No. 24, entitled "Practical Air Navigation", by Thoburn C. Lyon, of the U. S. Coast and Geodetic Survey. This bulletin may be obtained from the Superintendent of Documents, Washington, D. C., for $1.00. Information in this book is complete on practically every score required by the average private pilot. Maps are shown, giving an index of all aeronautical charts. One chapter takes up the problems of air navigation, including aids to navigation, traffic control and the problem of charts. Another chapter discusses the earth, its form; co-ordinates, and representation, how they are used in maps; why maps have inaccuracies at certain points, including the answers to many questions on these subjects. The third chapter takes up instruments, contains pictures of all the standard aircraft instruments along with descriptions and much data petinent thereto. The fourth chapter takes up chart reading and is extremely important for those pilots who have had comparatively little cross-country experience. Chapter five takes up especially the cross-country flying and piloting

(Continued on page 22)

MILO BURCHAM AT THE CONTROLS OF THE LOCKHEED P-38 IN WHICH HE SET A NEW STRATOSPHERE SPEED MARK

The Lockheed P-38 made history in February when Milo Burcham flew a series of speed tests in the violet-hued stratosphere. With its two 1100-horsepower Allison engines opened to nearly full throttle, the first of the new type interceptor-pursuits to come off the Lockheed production line chalked up a level flight speed record "faster than any airplane had ever been flown before," according to Burcham, 38-year-old Lockheed test pilot.

Over a shortwave set he radioed the story of the plane's performance to the test engineers at the Burbank airport. In the cockpit a motion picture camera, focused on an auxiliary instrument panel, photographed air speed, altitude and temperature gauges. On this negative is said to be the evidence that the P-38 is the fastest airplane in the United States. Military secrecy forbids release of the figure, but it is thought to be well above the 400 m.p.h. mark.

For his stratosphere flights, Burcham was "supercharged," in accordance with instructions from the Mayo Clinic at Rochester. This was done as a safeguard against aeroembolism, or aerial "bends," which are likely to occur when climbing above 30,000 feet too fast.

The Air Corps has several hundred P-38's on order, while the British have ordered nearly a thousand of the export version.

AIR ASSOCIATES' NEW LINE OF AIRCRAFT RADIO

LEFT: Air Associates' BR3-T lightplane receiver-transmitter. Receiver and transmitter are both contained in one case, 4½" wide, 3¾" high and 7¾" deep. Power supply is entirely contained in similar case of identical dimensions. Total weight of receiver-transmitter unit, ready to operate, is 10½ pounds. CENTER: Air Associates' CT-2 aircraft transmitter is designed primarily for military command or for larger private ships where light-weight equipment of medium low power is required. Total weight of transmitter with remote control unit, microphone, antenna tuning unit and other accessories is a little over 14 pounds. RIGHT: Air Associates' UHT-140G ultra-high frequency ground station transmitter with dust cover removed showing neat chassis assembly. Chassis is formed from one piece of 16-gauge sheet steel, the corners being braced and spot welded. Overall size of the transmitter is 17" wide, 10" high, 10" deep.

WHAT'S NEW

New Three-Placer by Stinson

The Stinson Voyager, a new three-place craft for private owners seeking a distinctive light plane, is now under production by Stinson Aircraft, division of Vultee Aircraft, Inc., Wayne, Michigan. It is an improved version of the Stinson 105, famous for its remarkable safety record during the past two years. The built-in slots and flaps of the 105 have been retained in the Voyager model.

The new plane is equipped with electric starter and generator. At 2,500 r.p.m. the 90 horsepower Franklin engine yields a top speed of 115 miles per hour. Its large-diameter propeller, turning at slower speeds, reduces slip and improves performance.

Special attention has been given the styling of this new model. A two-tone paint design is employed throughout, with choice of four new color combinations. The interior is done with two-tone Laidlaw broadcloth contrasted with rust Luxor Leather trim for seats and side panels, the finished effect being smart and pleasing.

A completely redesigned cowl and windshield provide greater visibility for the pilot. Seats are deeply padded with bolster rolls for greater comfort, and insulated cabin doors insure a greater degree of quietness for passengers' pleasure.

Among the Voyager's various features of special importance are dual magneto ignition; hydraulic valve tappets; springdraulic shock absorbers; full swivel tail wheel; a 20-gallon fuel tank; soundproofing; cabin ventilators, and NACA balanced-type flaps.

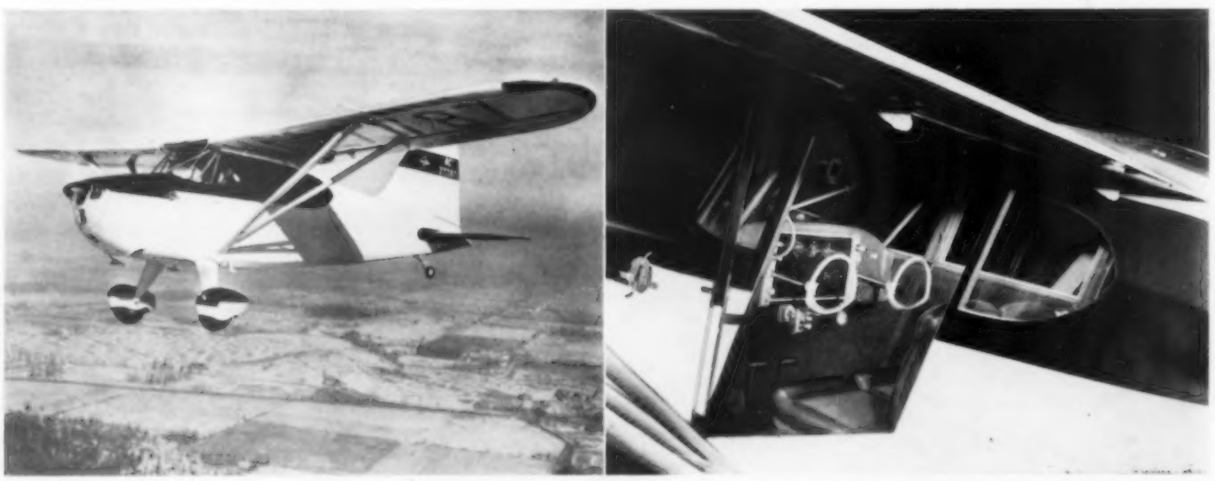
PERFORMANCE AT FULL LOAD

Maximum speed at sea level	115 m.p.h.
Cruising speed	Not furnished by manufacturer
Landing roll	150 ft.
Rate of climb	600 f.p.m.
Service ceiling	13,000 ft.
Takeoff run at sea level	550 ft.
Gross weight	1,625 lbs.
Useful load	677 lbs.

Air Associates' New Radios

A new range of aviation communicating systems built for ultra-high-frequency spectrums, medium-power stations, and light planes is now being offered by Air Associates, Inc., Bendix, N. J., and the new series meets the most stringent FCC and CAA requirements.

(Continued on page 20)



The 1941 Stinson "Voyager," powered by a 90 h.p. Franklin engine which provides a top speed of 115 miles an hour. Take-off run at sea level is 550 feet, rate of climb 600 feet per minute and service ceiling 13,000 feet. The new 3-place "Voyager" is equipped with electric starter and engine-driven generator.

The Birdmen's Perch

What goes on here, anyway? On this page, gentlemen, *we* print the puzzles—*you* solve them. I'm making a point of this because a lot of you readers of the Perch have been sending me problems and puzzles. Dandy ones, too. Only you don't send the answers with them. And how can I publish them in the Perch if I'm not sure of the right answers myself? Work 'em all out? Have a heart, fellows, and send answers with all puzzles!

Major Al Williams, alias "Tattered Wing-Tips," Mgr., Gulf Aviation Products, Gulf Building, Pittsburgh, Pa.

WOOING THE MUSE DEPT.

Thurman DuVall, a R.W. from Georgia Tech, thinks so much of Gulf Aviation Gasoline that he is moved to poetry. The following little epic, entitled, "G's," is reprinted with the kind permission of the author:

I think that I shall never see,
A gas as good as G.A.G.
A fuel that gives its very best
To fly these "birds" that have
no "nest"
A gas that's tops in many ways,
Used in every "crate" these days
Planes are flown by guys like me,
But only Gulf makes G.A.G.!

DISHWASHING—A TO Z.

When it comes to washing dishes, there seems to be a number of different schools of thought. For instance, there is the bachelor, or let-them-pile-up-to-the-ceil-

ing school. The bachelor grasps the dish and holds it under the hot water tap for a moment. He then lets the towel do most of the dirty work. Then there's the "sudsy" school. These folks believe in plenty of soap. They get the plates pretty clean—but the next time you use them there's liable to be a distinct flavor of soap. Of course, the ultimate in dish-washing is one of those new machines that does everything but stack the dishes for you after it's through washing them. What a job those machines do!

Washing dishes and cleaning up an oil have a lot in common. (Refining oil is really a cleaning process). There are lots of different ways to refine an oil. But you'll be glad to learn that Gulfpride is refined by the finest of these processes—the Al-chlor Process. Like using a modern washing machine instead of the hot water tap—it does the job of "cleaning up" better. In fact, it removes up to 20% more impurities. That's the simplest explanation of why airmen find it does such a wonderful job—year in and year out—in their motors.

ALL SLIDE RULES BARRED!

Max J. Conklin, of Lansing, Michigan, sends us this little brain-addler. He's one of the people who *did* send the answer. We have it and for the price of a post-card and a few moments of your valuable time figuring this one out, we'll let you know what the answer is.

A heavily laden pursuit plane takes off from a given point and is so slow getting started that he averages only 90 M.P.H. for the first mile.

How fast would he have to go the second mile to average 180 M.P.H. for the two miles?

Send in your answers, boys, and don't try this in your own plane!

THIS MONTH'S WHOPPER

Dear Major,

Inasmuch as you are already being sued for $769.68 (see Nov. Whopper,) I would like to file notice of suit for the sum of $10,000,000.00. It all started like this:

I was flying from St. Louis to Chicago in my little forty-horse Cub, when I hit a Degonic line, (a line on the Earth's surface connecting points of equal deviation.) It must have thrown me off my course because I noticed that my gasoline supply was getting low, and no sight of Chicago. I also hadn't hit any of my check points during the last six hours (you can see that I use dead pilotage) and I was really getting a little bit concerned, when the motor started to sputter and cough and finally died altogether. I quickly spotted a farmer's field and made a nice dead-stick landing in a corn field. The farmer came out raving mad, but I offered to pay for the damages, and his anger rapidly faded.

I explained my predicament, and, gentleman that he was, he offered to let me have some Gulf Aviation Gasoline, which he kept

on hand to kill corn-borers.

I allowed him to put two gallons in the tank, and after starting the little motor first pull, I taxied back for the take-off.

Waving good-by to the farmer, I gave her the gas and thereby started this whole mess. The G.A.G. turned that little forty-horse power motor over so fast that the prop-wash started a tornado that wiped out three counties in Southern Illinois before they got it stopped.

The damage was estimated at $10,000,-000.00 which I honestly believe is conservative, and they're suing *me*, so I'm suing *you*.

Honestly,

NORMAN P. BALLESTER

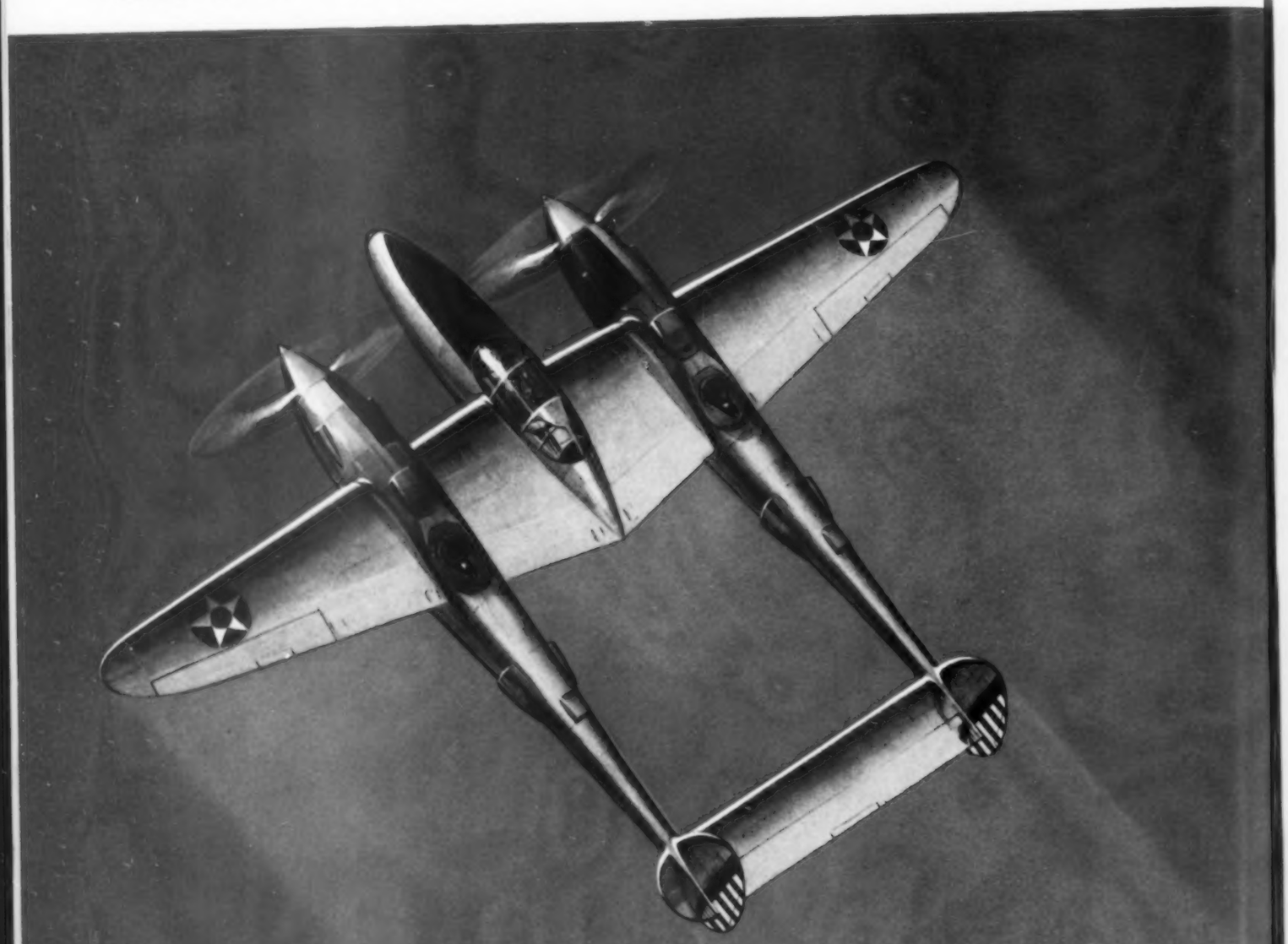
Evanston, Ill.

Gulf Oil Corporation and Gulf Refining Company . . . makers of

GULF **GULF AVIATION PRODUCTS**

THE *Lockheed* LOG

LEADERSHIP

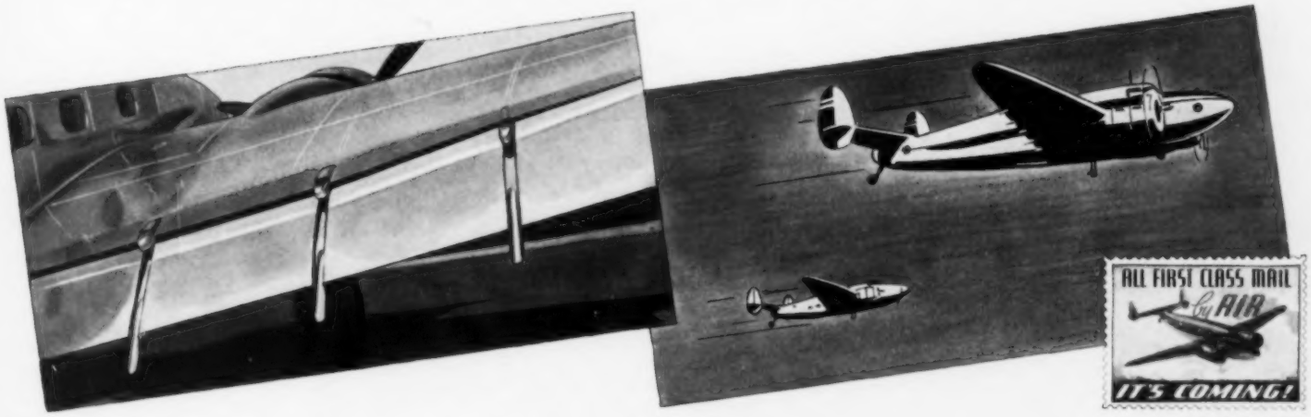


in Speed!

SPEED – the very essence of the growth of air travel. Speed – often the vital difference between life and death in a fighter. Speed – that allows a peace time transport to be transformed into a famous bomber.

"Lockheed engineered" stands for that kind of speed. And it's good business when you realize that greater speed permits longer flights during daylight... cuts working time of flying personnel... allows more revenue miles per flying hour... and more miles between overhauls.

But just speed is not enough! It's speed with dependability... speed with all 'round performance... and speed with economy that has made Lockheed commercial transports, the nation's fastest, famous the world over. And now from that great reservoir of experience in "engineering for speed" has come the Lockheed P38, a fighter in that distinguished 400 mile per hour class... and a capable defender of democracy.



Speed with safety is a Lockheed creed! That's why the most effective, high-lift device known in modern aviation... the Fowler Flap, was adopted and developed, then installed on fast Lockheed transports and military airplanes. The above illustration shows one of the flaps in extended position for landing.

It still takes a Lockheed to beat a Lockheed! In 1938 a standard Lockheed 14 shattered all records for transport airplanes, by flying across the continent in 10 hours, 33 minutes and 59 seconds. On November 2, 1940 a newer Lockheed, the Lodestar, clipped 1 hour, 4 minutes and 20 seconds from this unchallenged record.

LOCKHEED AIRCRAFT CORPORATION • BURBANK, CALIFORNIA, U.S.A.

LOOK TO *Lockheed* FOR LEADERSHIP

Printed in U.S.A.

WHAT'S NEW

(Continued from page 16)

The ultra-high-frequency receiver, model UHR-140A, is intended primarily for airline use, to take advantage of the static-free frequency ranges over 40 megacycles. A single ½ ATR unit houses the complete 10-tube superheterodyne receiver assembly and dynamotor power supply. The two-channel, six-frequency unit has provision for insertion of six crystals, two within the 140-144 megacycle band and four within the 129-131 megacycle channel.

The ultra-high-frequency transmitter, known as UHT-140A, comprises two ½ ATR sections, one housing the radio-frequency unit, the other the power-modulator unit for voice transmission. Power output is in excess of 30 watts, 100 per cent modulated.

An ultra-high-frequency transmitter and receiver for ground-station use are also offered. Both units can be mounted in a standard relay rack, and can be serviced from the front. The transmitter, model UHT-140G, is controlled remotely over a single telephone line. Unit draws 5 amperes at 115 volts, 60-cycle AC, with power output of about 50 watts.

The UHR-140G ground-station receiver is designed for airport traffic control and airline communication in the 140-144 megacycle band, and its circuit is similar to that of the ultra-high-frequency aircraft receiver.

For airline or military use, the company is producing model CT-30, a medium-power aircraft transmitter and ground-station receiver for the 2.5 and 15 megacycle bands. It is similar to the UHT-140A, but covers the conventional frequency spectrum. Power output is approximately 30 watts, with provision for use of four frequencies in two channels. The CR-3G receiver is a single-frequency crystal-controlled ground-station unit, of typical relay rack construction and with an efficient squelch for non-carrier noise.

The light-plane owner will appreciate model BR3-T, a compact transmitter-receiver weighing only 10½ lbs. with dry batteries, headphones, microphone, cables, and shock mountings. The transmitter, crystal-controlled on the 3105 kilocycle band, transmits 35 to 50 miles with power output of 2½ watts. Receiver, tunable on a range of 200 to 400 kilocycles, gives excellent reception for distances up to about 200 miles. Transmitter and receiver are housed in a single small case, and two dry cells in another case supply the power.

For larger planes having a generator and storage-battery system, the CT-2 transmitter and CR-2 receiver are offered, both operating from the plane's electrical circuit. The receiver covers the 200-400 kilocycle radio beacon and weather station band. The transmitter, with power of about eight watts, operates on any frequencies within the 2,500 to 10,000 kilocycle channel. Both are designed for complete remote-control operation.

Taylorcraft's New Trainer

A new two-place tandem Taylorcraft, designed primarily for training and ruggedly to "stand the gaff" in such work, has just been announced by the Taylorcraft Aviation Corporation, Alliance, Ohio. General design and appearance of the new plane follow those of the Taylorcraft standard and de luxe models, but a number of differences in construction are noticed. Wing struts are nearer the front of the ship, the cabin is much wider and longer, and dual control sticks are placed in the floor for greater ease of handling.

The new trainer is available with Continental, Lycoming, or Franklin engine, developing 65 housepower at respectively 2,300, 2,550, or 2,200 r. p. m. Economical operation is assured, as the plane has a 14-gallon fuel tank and a cruising range of approximately 300 miles.

Fuselage is of Warren truss-type welded steel tubing. Wings are No. 1 spruce with nicraluminum ribs, and leading edge is internally braced to fuselage by streamline struts and intermediate strut. Aileron controls are ball bearing and self-aligning. The tail surface has welded tubular construction with self-aligning wire bracing, and elevator tab adjustable in flight.

SPECIFICATIONS AND PERFORMANCE

Maximum speed	102 m.p.h.
Cruising speed	92 m.p.h.
Landing speed	35 m.p.h.
Service ceiling	15,000 ft.
Rate of climb	600 ft. per min.
Cruising range	300 miles
Span	35 ft. 5 in.
Length	22 ft. 9 in.
Gross weight	1,200 lbs.
Useful load	480 lbs.

New Features of 1941 Pipers

The 1941 models announced by the Piper Aircraft Corporation, Lock Haven, Pa., reveal Piper planes as fully abreast of latest developments. Both the Coupe and the Cruiser have mechanical starters as standard equipment. The complete installation weighs less than ten pounds, and the starter is easily operated from the pilot's seat.

The Coupe's instruments are now grouped in the center, permitting space for two compartments, and a custom-built radio transmitter is available for installation in one of these. Tachometer, oil, and temperature gauges are combined in one instrument, the Carwil compass is mounted above the panel and altimeter and airspeed complete the group of instruments. At minimum cost blind-flight instruments can be set up in the panel. An RCA custom-built radio is installed on the right side.

Dual controls, parking and hydraulic wheel brakes, and a wind-drive generator for additional current are standard items. The interior of the Coupe is upholstered in two-

The 1941 Taylorcraft trainer is the first tandem model produced by the Taylorcraft organization. It is available either with conventional landing gear as shown below (center) or with tricycle gear as shown at right. Note cabin arrangement and wide door at left.

tone Naugahyde available in several combinations, and a choice of ten different two-tone exterior paint combinations is offered without extra charge.

Performance has been improved by use of the Continental 75-horsepower engine, with cruising speed close to 100 m.p.h. and a landing speed of under 40. The plane has a safe range of 500 miles with standard tankage of 25 gallons. The 18-gallon wing tank, and a 7-gallon header tank ahead of the instrument panel, hold the fuel load close to the center of gravity and avoid much adjustment of the elevator tab control. Gross weight is 1,400 lbs. with a useful load of full gas tanks, two passengers, and 105 lbs. of baggage.

What's New Briefs

LEAR AVIA announces four new aircraft radio receivers with built-in interphone systems. Models AMR-1 and AMRL-1 are dry-cell units, and AMR-12 and AMRL-12 operate from 12-volt batteries; "L" models use both the conventional antenna and the Learadio direction-finding loop. The receivers have an identical range of 200-400 kilocycles, and differ only in tube complements and power requirements, dimensions, and weights. Units are direct controlled and can be mounted on the instrument board. Using a five-tube superheterodyne circuit, they have a sensitivity of 3 microvolts for 50 milliwatt output on antenna, and 50 microvolts per meter for the same output on loop. Selectivity is ample to give 3 kilocycles separation between stations. The interphone feature is invaluable for student instruction; simply plug in the microphone and talk.

THE ORIENTATOR, a radio orientation training instrument, is being introduced by American Aircraft Radio. Estimates indicate that from four to eight hours of flying time are required before the average instrument student can distinguish between the various signals and signal blends on the radio range and execute flight-procedure problems accordingly. The Orientator is intended to eliminate three-fourths of such training flight by simulating the conditions the student will meet during actual flight. An operating base represents the unknown flight terrain, and the signal device or audio oscillator, furnishes the beacon code signals. The instructor controls the signals; the student interprets them as received over his headphones, and "flies" by manipulating one end of a pantographic recording device equipped with pantographic compass and sweep-second watch. The other end of the pantograph, beyond the student's vision, records his flight procedure on a range map or chart. Students may listen in and also watch the completion of the simulated flight.

RADIO RANGE INSTRUCTOR, for simulating the exact combinations of signals heard by a pilot under flight conditions, has been brought out by Air Associates, Inc., Bendix, N. J. The entire unit, contained in a portable case, consists of an audio oscillator and amplifier, loud speaker, motor-driven keyer unit, and the "A" and "N" mixing system. The oscillator generates a clear 1,020-cycle tone ample for classroom use, and a phone jack permits connecting the output to as many as 20 headphones. The keyer system breaks up the output into the letters "A" and "N" exactly as used by airways radio range stations, and a mixer knob allows the operator to mix the signals as desired. Separate volume control is used to adjust the over-all level and to demonstrate "fade-out" problems and cone of silence identification. A microphone jack is provided, allowing the instructor to give weather and flight information to the student just as the pilot would receive it. The unit operates from 110-120 volts AC.

Standard equipment of 45 government air forces and used by commercial companies and private fliers everywhere . . . the Irvin Parachute is today aviation's Symbol of Safety.

The Famous "SPARTAN" School uses "IRVINS"

Irvin Air Chutes are dominant in the leading aeronautical schools of America and are preferred for use in the Civil Aeronautics Training Program. Descriptive literature and fundamental facts sent to school executives on request.

—Photo courtesy Spartan School of Aeronautics, Tulsa, Okla.

Our Engineers are at Your Service.

Southern Representative:
LEON McKENNON, Love Field, Dallas, Texas

IRVING AIR CHUTE CO., Inc.
1670 JEFFERSON AVE., BUFFALO, N. Y.
Factories at: Buffalo, N.Y.; Glendale, Calif.; Fort Erie, Canada; Letchworth, England; Bucharest, Rumania; Stockholm, Sweden and other countries.

THE SKY'S THE LIMIT

(Continued from page 15)

problem. Other chapters take up air navigation by dead reckoning, radio navigation, air navigation computor, graphs and tables, the practice of navigation, celestial navigation, etc. We believe that we have never seen a more complete book on the subject and it is written in easy, readable style, which should make it extremely valuable to pilots.

Civil Aeronautics Bulletin No. 27, entitled "Pilots' Airplane Manual", by N. O. Anderson, is obtainable from the Superintendent of Documents for thirty cents. This book is pretty complete on the matter of stresses on aircraft structures, airplane materials, standardization, joining, fastening and safetying, airplane construction, assembly and alignment, maintenance and care of airplanes and much miscellaneous information. On looking through the book, we see a number of things explained which we had not heretofore understood. The manual should certainly be of interest to all mechanics, all maintenance men and in fact, to anyone interested in flying. Many of the ideas taken up in this book are useful in other industries.

We have long felt that the greatest difficulty or force holding back aviation has been ignorance. Certainly, many people would not have done the maneuvers with airplanes that resulted in their untimely demise had they been more acquainted with the forces acting on airplanes in flight and the design of the part which failed. A great many people have unbounded faith in airplanes, anyway, but my faith and any engineer's faith in an airplane is based entirely on knowledge of what makes the wheels go around and what the stresses and strains are under operating conditions.

We heartily recommend both the above books to every student and pilot and believe that a thorough study of them will result in more satisfaction to everyone concerned.

Patriotism in National Defense

A UNITED PRESS notice on February 18, 1941, informed us that there were fifteen strikes in defense plants engaged in the nation's arming program. These strikes involved ship yards, steel mills, automotive and aviation parts plants, radio and heavy machinery factories. Some of these strikes were not for better working conditions nor for more pay nor for any other advantage to the workmen themselves, but are described by the United Press as, in one case, demand for closed shop conditions, demand for union recognition, demand for clarification of status, dissatisfaction with night shift conditions and one strike in a vital plant which the C. I. O. local described as unauthorized. On the same date one of the large supply companies for aircraft steel and aluminum was quoting delivery of raw material by September 1, 1941. In some cases, they were absolutely refusing to even accept orders. At the same time, the Youngstown Sheet and Tube Company, manufacturers of aircraft tubing and special steel, were shut down by strike. It is plain to be seen that the rearming can not continue at any fast rate unless some kind of arrangements are made to prevent tie-ups at least in the raw materials. We know from our own experience that some of these materials are now impossible to obtain, even with definite National Defense priorities operating.

This is a period of emergency when the National Defense requires every possible co-operation from all of us. Men are being drafted into the Army. Many industrial companies have been given contracts and by law the profit on these contracts has been negligible and therefore, they are, in effect, "drafted". This is not a time for labor to take advantage of the situation. It may be true that in many cases labor is not being equitably treated; it may be that working conditions are not the best, but most of the people now engaged in National Defense projects have been recently employed and they came to work under the conditions which they are now striking to change.

Most of the National Defense contracts are let on a bid basis. That is to say, that the contractor had to bid competitively with other companies in order to obtain the contracts. On a bid basis, the price per airplane, per submarine or per square foot of steel, has been set and there is no way to change that price. Since the government has fixed a seven per cent profit as the maximum that can be legally made on defense projects, any change in labor price or conditions is quite likely to wipe out the profit expected. A plant can not operate at a loss for very long. It is, therefore, unfair for laborers to take this opportunity to force a manufacturer to pay them more than they agreed to work for or more than he figured in his competitive bid, because that can eventually ruin him, unless he has tremendous savings accumulated in past years. Tremendous accumulated surpluses are rather rare in this day and time, because fly-by-night politicians have long since taken their whack at these surpluses and have declared open season on them for the last several years.

Why can't we all stand shoulder to shoulder on this business and get the job done and save what liberties and rights we now have before it is too late? The other day we listened to a Frenchman, who had been through this last campaign in France leading up to the fall of the French Republic. In no uncertain terms he denounced the French politicians and labor leaders who had brought about the condition that made France so vulnerable to the Germans. It can happen over here and may if we are not careful.

A Word of Caution

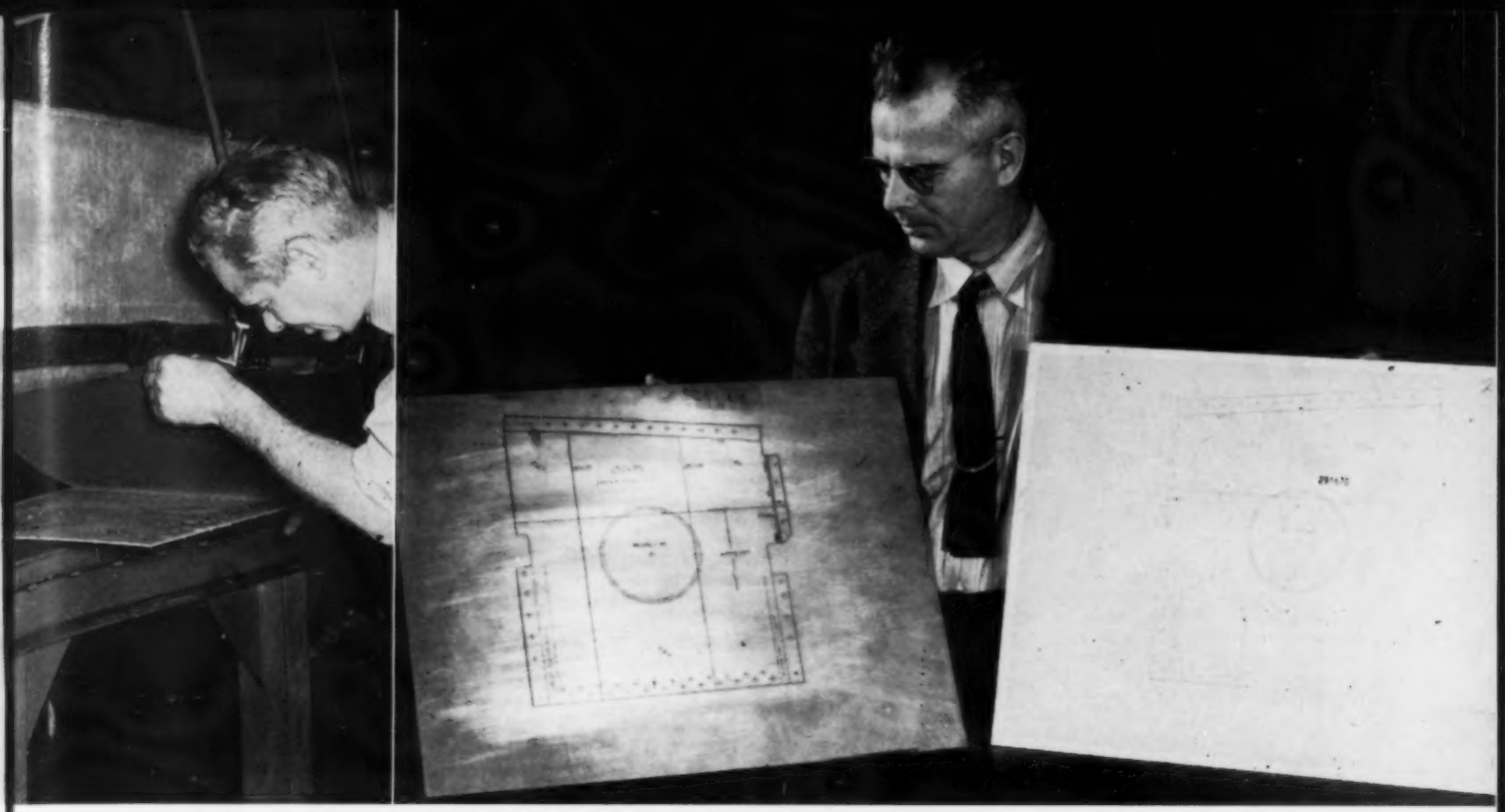
A BRAND new Hudson bomber crashed into a radio tower adjoining the El Paso Airport while making a routine approach for landing last month. While this is the first loss of a bomber being delivered to Britain by Lockheed, it is still another example of the kind of difficulty you can get into by simply not looking out. In the last month there have been several accidents, one fatal airline accident, caused by maneuvering too close to the ground and not keeping sufficiently good lookout for obstructions. Almost every one of these landing accidents and collisions in mid-air can be prevented if we simply keep our eyes open and look out.

JUST AMONG OURSELVES

(Continued from page 6)

the field. The Field Service Section is busy with a tremendous construction program with new type buildings at the several Air Corps depots. Like the technical brethren in the commercial aviation industry, there is nothing but praise for the splendid work being carried on and the speed and efficiency with which it is done.

A review of all this technical progress, a realization that scientific genius in good measure is striving unceasingly to give us military aircraft second to none in quality, performance, safety and effectiveness, a consciousness that we don't have to worry about consistent progress in engineering, research, experimentation and service, so that we can keep up with and out-perform all competition, leaves us with one predominant thought—if we could get the same satisfaction and performance from the politicians and from labor as we do from our technical experts, this nation wouldn't have a worry in the world, and Uncle Sam would lose that sorrowful expression he acquired when he began to realize the world was on fire and all he had was a water pistol.



At left, Clarence O. Prest, who first suggested the electrolytic process, is placing the master template layout (bottom) and the metal copy plate in the press after both have been thoroughly moistened. Next are shown the finished copy (left) ready for the template cutters, and the master layout, from which it was reproduced in a few seconds.

Electrolytic Method Cuts Template Costs

Process saves time, ends errors, slashes heavy production expense

AN ELECTROLYTIC transfer process for reproducing templates which saves thousands of dollars during construction of new aircraft models—and is available to every aircraft manufacturer—has just been announced by R. A. Von Hake, vice president, Lockheed Aircraft Corporation. The basic idea was submitted by Clarence O. Prest, and the process has been developed for production use by Lockheed technicians.

The usual hand method requires laborious scribing of a duplicate copy of the master layout on a metal sheet. A simple drawing may be copied in perhaps a few hours; more difficult ones take several days, and some of them require weeks of time. As every master layout needs at least one extra copy, and the number of copies sometimes runs to six, the high cost of the manual process is obvious.

The new method of course requires the original drawing, and its scribing on a specially treated metal sheet for the master layout. But from there on the electrolytic transfer process makes copies of the master template in seconds instead of days. The machine now in operation at the Lockheed plant and run by two men is estimated to have a daily copying capacity equal to 500 man hours of hand copying!

This process works as follows: The master layout is scribed from the engineer's drawing upon a sheet of galvanized iron about .040 inch in thickness which has been coated with special insulating paint, and every line scribed must extend through the paint coating and into the metal surface. This layout is then sprayed with a transfer solution.

Next, the wet surface of the master layout is pressed into firm and uniform contact with a metal copy plate which is usually .036-inch unpainted ternplate, a special press being used. An electric current is then passed between the two plates, and the layout is transferred instantly to the copy plate.

After a few seconds the pressure of the press is released and both plates are separated, washed, and dried. When the copy plate has received a thin protective coating it is ready for the template cutters' use. As the master plate's imprint upon the copy plate is made immediately upon applying the current in the press, no subsequent hardening or drying process of any nature is necessary. Total time the method requires, from placing the two plates in the press to delivery of the finished copy plate to the template department, is not over five minutes.

Advantages of the new process are many. Its greatest value might seem to be elimination of the heavy expense incident to the present manual method of duplicating master plates. Equally vital is the complete impossibility of mistakes in copying which occur in hand work despite the most scrupulous care of skilled men. The electrolytic transfer process, by making copying a machine job, removes the often costly factor of human error.

Any number of copies desired can be made, and size of plate and fineness of detail obviously do not increase the operating time for this process. Lockheed's present press can handle plates up to 48 x 144 inches in size. Relative to size, the electrolytic process has a disadvantage not suffered by the photo-loft-template method. The latter produces copies to various scales, whereas the electrolytic method duplicates only in exact size.

The press used comprises a stationary platen or table, and a movable plunger, each built of heavy steel plates carrying thick pads of resilient sponge rubber on their adjacent surfaces. The plunger, heavily weighted, is raised or lowered

(Continued on page 28)

Your Industry

AERONCA—Six planes are being rushed to completion in the Aeronca Aircraft factory at Middletown, Ohio, for use in an extensive program undertaken by the Uruguayan Government to teach its civilians to fly.

Recent international events have made Uruguayans air minded, and the Aero Club of Uruguay, which has been air minded for many years, has seized on this situation to obtain government funds for planes in which to train the hundreds of eager young men clamoring for instruction.

The Uruguayan government has shown itself not only willing but anxious to co-operate. Government financial help for the activities of the Aero Club of Uruguay is no new thing, but an order for six planes at one time is the largest airplane order ever placed in Uruguay. And indications are this is only the start.

Within the last few months, the Uruguayan government has sponsored the formation of a civil reserve pilots corps, and has approved a special law provdiing funds to buy training ships for many of the aero clubs in the interior of the country.

BORG-WARNER—At a meeting of the Board of Directors of Borg-Warner Corporation, a dividend of forty cents per share was declared on the common stock. This dividend is payable on April 1, 1941, to stockholders of record at the close of March 18, 1941.

FLEETWINGS—The War Department has announced the delivery for testing of a new Basic Training Airplane, the XBT-12, by Fleetwings, Inc., of Bristol, Pa., styled in gleaming stainless steel. This aircraft is powered with a single Pratt & Whitney R-985 nine-cylinder radial air-cooled engine producing 450 horsepower at 2300 revolutions per minute.

Facilities of the XBT-12 provide for a student and instructor in canopied cockpit.

FREEDMAN - BURNHAM — The Freedman-Burnham Engineering Corp. of Cincinnati, Ohio, has recently finished the job of enlarging its factory at 659 E. 6th St. This company is the only manufacturer of a wooden adjustable propeller for light aircraft. In order to meet the current demand for their products, the company has just tripled its production facilities.

Gordon L. Freedman, president, announces the recent acquisition of Bert M. Wallenstein as vice president and sales manager. Mr. Wallenstein will be in charge of sales and promotional work.

Due to its adjustable principle and design, the Freedman-Burham propeller adds from 50 to 150 feet per minute to the climb and from 3 to 6 miles per hour in cruising speed to the average light airplane. By means of adjusting the two wooden blades in the metal hub, this propeller can be readily adapted to meet the desired performance of the pilot.

KELLETT AUTOGIRO—Unfilled orders of Kellett Autogiro Corporation amounted to $2,208,000 on January 31, the highest total in the Corporation's history, according to R. G. Kellett, executive vice president of the company.

Mr. Kellett said the principal portion of the business on hand was made up of orders for aircraft parts and assemblies from leading aircraft manufacturers, engaged in national defense production. War Department contracts for autogiro development and production work amount to more than $100,000, he stated.

Among the manufacturers for which Kellett is producing flap and tail assemblies, engine mounts, bomb bay doors and aircraft seats are Consolidated Aircraft, Republic Aviation, Curtiss Aeroplane, Brewster Aeronautical, Bell Aircraft Corporation and the Glenn L. Martin Company.

LEAR AVIA—Two new distributors and one new service dealer of Learadio apparatus have been announced by Lear Avia, Inc., Dayton, Ohio.

The new distributors are J. R. Hime Electric Co., 376 South County Road, Palm Beach, Florida, and Van Dusen Aircraft Supplies, Administration Building, Wold-Chamberlain Airport, Minneapolis, Minnesota.

The new service dealer is Southwest Airmotive Co., Love Field, Dallas, Texas.

• Shortage of trained personnel has already manifested itself in all branches of the aeronautical industry, and especially in the manufacture of aeronautical radio apparatus and accessories.

To relieve this condition, Lear Avia, Inc., Dayton, Ohio, has inaugurated a free vocational training program for its employes, under the guidance of the full-time salaried director of the company's educational activities, Paul H. Nelson.

Both afternoon and evening classes are now being held daily in Butler Township High School, the entire expense of the training program being borne by Lear Avia.

LOCKHEED—In an enthusiastic and voluntary effort to put their shoulders behind the wheels of national defense by doing their part in further speeding the output of warplanes for the United States Army Air Corps and the British Royal Air Force, 8,000 Lockheed and Vega employes have enrolled in 200 trade extension classes in the Burbank schools to increase their skill as aircraftsmen.

The turnout, representing more than one-third the 21,500 employes, is believed to constitute the largest education program to be found in any industrial concern in this country.

The classes will run for a period of 20 weeks, and will be held three nights a week.

"As fast as these men qualify for positions of greater responsibility they are being moved into higher paying jobs," declared R. Randall Irwin, manager of industrial relations for Lockheed. "At the same time that they are speeding their own advancement, they are making it possible for the two companies to expand production much more rapidly than would otherwise be possible."

• Aviation's first important development arising out of the war, a new method of riveting in which counter-sunk rivets provide an entirely smooth surface to the streamlined exterior of an all metal airplane, has entered the commercial field for the first time with the delivery by the Lockheed Aircraft Corporation to Continental Air Lines of the first flush-riveted transports in America.

The planes, the first three of a fleet of Lockheed Lodestars, will go into service between Denver, Colorado, headquarters of the airline, and El Paso, Texas, and between Denver and Wichita, Kansas.

"Flush riveting, an outgrowth of Lockheed's flush-riveted Hudson Bombers now in use by the R. A. F., not only gives us twelve miles per hour more top speed," declared Robert F. Six, president of Continental Air Lines, "but to our surprise and that of Lockheed engineers, it also lowers the landing speed five miles an hour."

LYCOMING—Reflecting the dispatch with which the nation is making flyers in the Civilian Pilot Training Program is the shipment of an order for Lycoming engines that is said to be the greatest mass-delivery in light-plane history.

An entire carload of Lycoming 65-horsepower engines, comprising two hundred units, recently rolled from the siding of the big Lycoming plant in Williamsport, Pennsylvania, on its way to the fast-growing factory of Taylorcraft Aviation Corporation in Alliance, Ohio.

Speaking of the record order from Taylorcraft, W. K. Cooper, general manager of the Lycoming Division of Aviation Manufacturing Corporation, stated:

"The importance of the light plane in the training of pilots for national defense cannot be overemphasized. Already the Civilian Pilot Training Program has, through use of the light plane, increased the number of active pilots in the United States to some 65,000. That this reservoir of trained airmen can provide a reserve readily convertible to military service is indicated by the fact that over 2,600 CPT students have already been inducted into the Army and Navy air services."

MENASCO—Menasco Manufacturing Company has reported a backlog in excess of $4,000,000. In addition to manufacturing airplane engines for the Canadian and Dutch East Indies governments, the Vega Airplane Company, and a number of private plane owners, the company is making hydraulic struts for military planes, producing nonferrous alloy castings for local aircraft manufacturers, and doing development work on a small stationary diesel engine.

NATIONAL MACHINE PRODUCTS—National Machine Products has been incorporated in California and has taken over the modern factory at 150 West Slauson Avenue at which National Postal Meter Company formerly manufactured its product.

The factory will manufacture machine parts and units for airplane and other companies. The plant has for some time manufactured airplane parts for leading California companies.

Louis H. Seagrave has resigned as Chairman of the Board of National Postal Meter Company to become president of National Machine Products, and Robley F. Sopris will be vice president and general manager.

PRATT & WHITNEY—The 25,000th engines to be manufactured by the Pratt & Whitney Aircraft Division of United Aircraft Corporation recently rolled off the assembly line at the East Hartford plant. Among those who were on hand for the occasion, just prior to shipment of the engine to the U. S. Army Air Corps, were E. E. Wilson, President of United Aircraft, and the following Pratt & Whitney Aircraft officials: L. S. Hobbs, Engineering Manager; A. V. D. Willgoos, Chief Engineer; W. A. Parkins, Assistant Chief Engineer; G. H. D. Miller, Factory Manager; D. Jack, Assistant Factory Manager; and W. Levack, Assistant Superintendent, Assembly Department.

The engine, an 1,850 horsepower Double Wasp, is the latest type developed by Pratt & Whitney Aircraft in its 15-year history. It is used in the new Vought XF4U-1 Navy Fighter, described as the fastest plane in the United States, and is being installed in Army planes being built under the national defense program. Only recently a modified version of the Pratt & Whitney Double Wasp successfully passed Army tests for engines of 2,000 horsepower.

• Two 80-foot extensions, one on the north and one on the south, will be added to the Engineering Building of the Pratt & Whitney Aircraft Division of United Aircraft Corporation.

The wings will include three floors and a basement, and will almost double the present available engineering building area.

RYAN—A $350,000 aircraft plant expansion at the Ryan Aeronautical Company, San Diego, involving a 100,000 square-foot increase in floor space of the plant, has been announced by T. Claude Ryan, president, who revealed that construction was already under way.

The principal factory addition, which will adjoin the north side of the Ryan plant on Lindbergh Field, is to be 200 by 325 feet, of steel frame construction with saw-tooth roof, and will be used for sub and final assembly of Ryan S-T type military training planes for the U. S. Army Air Corps and U. S. Navy, and for storage of airplane parts.

Meanwhile, across Lindbergh Field from the Ryan manufacturing plant, the company's subsidiary, Ryan School of Aeronautics, has just completed a new 100 by 200 foot hangar and has begun construction of two additional two-story school buildings, each approximately 44 by 85 feet, adjoining the school's main offices.

SOUTHERN AIRCRAFT—The Board of Directors of Southern Aircraft Corporation have announced the appointment of the following officers: Willis C. Brown, president; J. R. McLean, assistant to the president, and treasurer; Orin Moe, vice president and chief engineer; A. Eugene Pattison, vice president and assistant treasurer; Frances H. Brown, secretary.

The annual meeting was coincident with the move of the company's entire manufacturing operations from Houston to Garland, a location fourteen miles northeast of Dallas and nine miles east of the municipal airport, Love Field.

The section of the modern brick and steel factory just completed contains 20,000 square feet of floor area, which is one fifth of the projected area. It is located on a 23-acre plant site adjacent to the company's 160-acre landing field.

Production on the Southern Model BM-10 military primary trainer, designed to Air Corps specifications, is going ahead with but a two-day interruption occasioned by the move.

STUDEBAKER—On the eve of observance of its 89th anniversary, The Studebaker Corporation has revealed that its three aviation engine plants are going to be ready to receive their first shipments of machinery on May 1. The plants are being built in South Bend and Fort Wayne, Ind., and Chicago.

The only company to successfully survive the transition from wagon-making to automobile manufacturing, Studebaker is now engaged on one of the largest aviation projects of the U. S. defense program. A total of 9,400 men will be employed in the three engine plants which will be turning out two Wright engines per hour when maximum output is reached.

VEGA—One year ago the Vega Airplane Company had 600 employes, 170,000 square feet of floor space in an old truck factory, one experimental airplane (the Unitwin Starliner) and no backlog.

Today the Vega Airplane Company has 4,500 employes, 1,289,901 square feet of floor space ready or in the process of construction, the Unitwin Starliner (still in experimental stage), the Vega "35" primary-secondary trainer, the Vega "37" (a medium bomber that is bigger, faster, and more heavily armed than the famous Lockheed Hudson), a flourishing parts business, and a backlog of $75,000,000.

This record just about tops the aircraft industry in expansion for any single year since Kitty Hawk.

There are several reasons for this amazing growth. The company is a subsidiary of the Lockheed Aircraft Corporation. Its president, Courtlandt S. Gross, is a brother of Robert E. Gross, president of Lockheed. Richard A. Von Hake is in charge of the manufacturing of both companies. Cyril Chappellet is secretary of each company. H. E. Ryker is coordinator of each. Thomas H. Corpe is assistant sales manager of Lockheed and Vega. Vice President C. A. Barker controls the finances of both companies.

These men are in a position to see that Vega becomes a major factor in the aircraft industry—and the past year's record reflects the speed with which the job is being done.

SCHEDULED AIR TRANSPORT

AIRLINES ANNOUNCE CREDIT TRAVEL PLAN

Effective March 1, 1941, seventeen leading airlines, members of the Air Traffic Conference of America, will offer a new installment plan for the purchase of air travel. This plan, which permits the time payment purchase of air travel, is the same as the one in effect for nearly a year in rail transportation.

Under this new arrangement, the user of air service merely goes to any Airline Ticket Office or Travel Bureau and makes application for travel-credit in the amount of the proposed trip or tour, and if a routine credit inquiry indicates an ability to meet monthly payments he is notified that his ticket is ready for him.

The new installment plan is available in every city where airline tickets are sold, at Airline Ticket Offices and Travel Bureaus.

Half a century ago, the pioneer pushed southwest on hoof and wooden wheel.

Today, the business pioneer—industrialist, salesman, engineer, or service man—goes southwest on Braniff wings!

Braniff's fleet of 21-passenger DC-3 Super-B-Liners covers this vast Economic Empire day and night, saving time, conserving energy, making travel a pleasure that pays dividends. Wherever you live, you are but a few hours by air from Braniff—it's 5 to 1 that any airline makes direct connections. Call your favorite travel agent for Braniff reservations.

Fly BRANIFF

38 FLIGHTS DAILY TO THROUGH & FROM THE Southwest

BRANIFF— Once again the question of whether or not the Braniff Airways operations base will remain in Dallas or be removed to some other location, possibly Fort Worth, is in the air.

Recently, the city of Dallas and Braniff Airways signed a contract providing that the city would erect a $100,000 hangar at Love Field and lease it to the airline for a twenty-year period. Later, T. E. Braniff, president of the airline, asked the city to erect a $250,000 building and lease it to his firm on the terms of the lease contract on the $100,000 structure.

City councilmen have withheld approval of this new proposal, and neither city nor airline officials would predict whether a compromise settlement was possible.

Robert J. Smith, Braniff vice president, refused to confirm or deny the reports that Braniff Airways had virtually signed a lease contract on a Fort Worth site for its base operations.

CHICAGO & SOUTHERN— March the first witnessed the inauguration of a new air service between Houston, Texas, and Memphis, Tennessee, serving Shreveport, Louisiana, and Pine Bluff, Arkansas. Heralded as the most important link in the air travel and air mail map of the country, the new airway operated by Chicago & Southern Air Lines will give the Southwest direct connections with the metropolitan areas in the North and Northeast.

In commenting on the new service, Carleton Putman, president of Chicago & Southern, stated that the line will operate over 1,400 miles of airways, and that some of the finest airports in the country are located on this system.

NORTHWEST— Northwest Airlines carried, during January, 1941, 5,297 passengers, a total of 2,601,010 passenger revenue miles, Croil Hunter, president and general manager has announced. This was an increase of 5.55 per cent over the 2,464,304 passenger revenue miles flown in the same period last year.

January, 1941, marked the 29th consecutive month that Northwest Airlines passenger revenue has increased over the comparable month of the previous year.

PENNSYLVANIA - CENTRAL—A 21.27 per cent increase in revenue passenger miles flown and a 17.78 per cent gain in revenue passengers carried by Pennsylvania-Central Airlines in January, 1941, over January, 1940, has been announced by Edward Sullivan, general traffic manager of the airline.

January's better-business record marked the thirty-first consecutive month that revenue passenger traffic on PCA's routes showed a substantial increase over the company's business for the corresponding month in the preceding year, Sullivan said.

TRANSCONTINENTAL & WESTERN— An "Automatic Block Signal" system for airplanes in flight has been perfected by radio engineers of Transcontinental & Western Air, Inc., according to Paul E. Richter, executive vice president.

The invention, of potential military value, represents years of study by TWA engineers to devise an electrically-operated instrument that will permit flight dispatchers to have a visual and automatic record of transport planes operating in any given area under their control. Under the present airline system, dispatchers depend upon radio advices from pilots to record the positions of planes aloft.

The new invention, according to Richter, will enable the flight superintendent to keep a positive, double-check on the plane's position —a check from the dispatch board and a corroborative advice from the pilot.

MILITARY NOTES

AWARDS— Continental Motors Corp., Detroit, for aeronautical engines and spare parts—$10,715,019.

Buick Motor Div. of General Motors Corp., Detroit, for P&W aircraft engines and spare parts—$36,497,520.

Brewster Aeronautical Corp., Long Island City, for airplanes—$4,544,287.

Link Aviation Devices, Inc., Binghamton, N. Y., for trainers (special)—$50,450.

Pioneer Instrument Div., Bendix Aviation Corp., Bendix, N. J., for Navigation Instruments (special)—$6,890.

Wright Aeronautical Corp., Paterson, N. J., Maintenance parts for aeronautical engines—$241,537.

Boeing Aircraft Company, Seattle, Washington, Armor Plate Protection—$77,805.

Hamilton Standard Propellers Div., United Aircraft Corp., E. Hartford, Conn., Propeller Assemblies—$77,064.

Sperry Gyroscope Co., Inc., Brooklyn, N. Y., Bomb Sights—$5,180,100.

Goodyear Tire & Rubber Co., Akron, Ohio, Wheel and Brake Assemblies—$923,504.

Curtiss Propeller Division, Curtiss-Wright Corp., Clifton, N. J., Propeller Assemblies, controls and data—$19,013,816.85.

Fairchild Aircraft Corp., Jamaica, N. Y., Aircraft Cameras, Cone assemblies, etc.—$8,019,845.

Eclipse Aviation Div., Bendix Aviation Corp., Bendix, N. J., Assemblies—$578,925.

Pump Engineering Service Corp., Cleveland, Ohio, Fuel and Vacuum Pumps — $2,929,793.20.

Fairchild Aviation Corp., Jamaica, N. Y., Cameras—$3,174,390.

Beech Aircraft Corp., Wichita, Kansas, Airplanes and spare parts—$1,191,639.

Eclipse Aviation Div., Bendix Aviation Corp., Bendix, N. J., Aircraft Starters — $452,525.

Hamilton Standard Propellers Div., United Aircraft Corp., E. Hartford, Conn., Propeller Blades and Assemblies—73,267.

Grumman Aircraft Engineering Corp., Bethpage, L. I., N. Y., Airplane—$250,070.

Washington, D. C.— The War Department has announced that the B-17D "Flying Fortress" manufactured by the Boeing Airplane Company of Seattle, Washington, is undergoing tests by the Army Air Corps.

The B-17D is an improved model of the B-17 series heavy bombers. This newest of "Flying Fortresses" is equipped with cowl flaps, armor plate, and leak-proof fuel tanks. It is powered by four 1,200 horsepower Wright engines, has a speed well in excess of 300 miles per hour, and a gross weight of 39,287 pounds.

It has a wing span of 103 feet and is 67 feet long. Provisions are made for a crew of from 7 to 9 men, including a commanding officer, pilot, co-pilot, navigator, bombardier, radio operator, and gunners.

Gene Royer, general manager of the newly formed AIRCREDIT, INC., aviation finance company of Fort Worth.

AIRCREDIT, INC. ANNOUNCED

A new predetermined aircraft finance balance rate chart for aircraft dealers and distributors is being introduced by Aircredit, Inc., newly formed aircraft finance company being managed by Gene Royer, veteran aircraft finance man of Fort Worth.

Announcement of the formation of Aircredit, Inc., has been made by Mr. Royer, who is secretary and general manager of the company. Mr. Royer formerly was manager of the Southwestern regional office of a nationally known aircraft finance company. He has a wide acquaintance among flight operators, dealers and distributors in the Southwest, and has been in the finance business for 16 years.

Aircredit, Inc., will operate in five States. Insured and non-insured aircraft finance plans will be offered. The financing will cover new and used aircraft, motors, parachutes, instruments, accessories, repairs, and overhauls.

Officers of the new company are: Gilbert Harrison, Jr., president; Sterling Holloway, vice president; Marshall Cloyd, treasurer; Gene Royer, secretary and general manager. Offices will be in the Airport Terminal Building, Meacham Field, Fort Worth.

HANDBOOK OF AIRPLANE INSTRUMENTS

Kollsman Instrument Division's leather-bound, 150-page "Handbook of Airplane Instruments" is one of the most complete and interesting books available in this field. Profusely illustrated with charts and drawings, it not only describes the various instruments used in modern flying, but includes clearly pictured directions for their cleaning, repair and adjustment. The book is in ring binder form so that supplements may be added as issued, keeping the owner abreast with the latest information along this line.

The cost of the book is $2.00, which covers shipping to any point. Copies may be obtained from the *Kollsman Instrument Division of Square D. Company, 80-08 45th Ave., Elmhurst, N. Y.*

ANNOUNCES NAME CHANGE

Bredouw Aeromotive Corporation, of Kansas City, Missouri, has announced a change in name to Missouri Aviation Corporation. No change in corporate structure or ownership is involved, the new name being adopted to more closely conform with the company-owned and operated school division, the Missouri Aviation Institute. Homer Bredouw is president and William E. Bruce is vice president.

Carl S. Goodwin | T. B. Herndon | R. Elmer Minton | George C. Rodgers | Richard M. Mock | Dr. V. A. Hoover

PERSONAL NOTES

• C. S. GOODWIN has been appointed Comptroller of Brewster Aeronautical Corporation, Long Island City, New York, George F. Chapline, President of the Company has announced.

For the past several years Mr. Goodwin has been on the staff of S. D. Leidesdorf & Company, certified public accountants, New York City, where he has had direct contact with air manufacturing as well as other industrial concerns.

• The Louisiana Aeronautics Commission has announced the appointment of CAPT. T. B. HERNDON of Mansfield, Louisiana, as coordinator of aeronautics for the State. An Air Corps reserve officer, Herndon is a director of the Southwest Aviation Conference, on the board of governors of the National Aeronautics Association, member of the FAI records committee and on the board of directors, Airport Division, American Road Builders' Association. Well known throughout southern aviation circles, Herndon has been active in aviation for sixteen years and holds commercial pilot certificate No. 831.

• The appointment of R. ELMER MINTON as salesmanager of the Curtiss Propeller Division of Curtiss-Wright Corporation, of Caldwell, N. J., to succeed GEORGE C. RODGERS who has been named management assistant of that unit, has been announced by Robert L. Earle, vice president and general manager of the division. Mr. Minton was formerly installations manager.

• Forecasting the approaching expansion of the Lear Company into the manufacture of essential new aircraft accessories, William P. Lear, president of Lear Avia, Inc., has revealed the recent appointment of two new executives, both of whom will make their headquarters at the Lear plant in California.

DR. V. A. HOOVER was appointed manager of the newly organized Lear Motor Division, in charge of engineering a complete new series of small, lightweight low-power electric motors using the Lear "Fastop" electromagnetic clutch mechanism, which will be announced in the near future. The second appointment was that of RICHARD M. MOCK, as manager of the new Lear Equipment Division.

• J. H. (Dutch) Kindelberger, president of North American Aviation, has announced that ALEXANDER T. BURTON, division manager of North American's new Dallas plant, will now go to Washington as representative of the company. Under the reassignment of executive personnel, operations in the Dallas plant will be headed by E. J. (Jim) RIVERS. The present Washington representative, LELAND R. TAYLOR, will return to the Inglewood plant as executive staff assistant.

• Air Associates announces the appointment of W. D. VAN DYKE as general manager of the company's new radio division. Van Dyke has been closely associated with aviation radio for the last 15 years, having had piloting experience as far back as 1926 when he flew for old Interstate Airlines between Atlanta and Chicago. When that company was absorbed by American, Van Dyke continued as first pilot until 1932, when he resigned to engage in private aviation radio development. Since 1936 he has been with the aviation radio section of the RCA Manufacturing Company. He still holds an active commercial pilot certificate, is a member of the institute of radio engineers and a QB.

• Thomas A. Morgan announced last month the election by the Board of Directors of LOUIS F. MALKOVSKY to the position of vice president of the Sperry Gyroscope Company. Malkovsky joined Sperry in 1914 as a tool maker and subsequently worked in every department of the factory. He will be in direct charge of production of the entire line of Sperry products.

• At the Cub distributors' convention in Lock Haven, Pennsylvania, last month, TOM BECK, president and editorial director of Colliers magazine, presented W. T. PIPER, well known Piper "Cub" manufacturer with a special "Collier" trophy for having built more airplanes than any other person in the United States.

• ORVILLE E. MOHLER, sales manager of the Menasco Manufacturing Company for the past year, has been elected vice president of that concern. He will continue his supervision.

Mohler, a veteran flyer, is credited with greatly expanding the company's sales activities in the short time he has been with Menasco.

• PHILIP H. GUSTAFSON has been named by Myron B. Gordon, vice president and general manager of the Wright Aeronautical Corporation, Paterson, N. J., as the new Manager of Public Relations of the aircraft engine company. Gustafson succeeds RONALD GALL, who has joined the Brewster Aeronautical Corporation.

Mr. Gustafson has had 13 years experience in the newspaper, advertising and public relations fields. He is a former staff member of the New York Herald-Tribune, Syracuse, N. Y., Post Standard, and Joliet, Illinois, Herald News.

• THOMAS O. HARDIN, former chairman of the Air Safety Board of the Civil Aeronautics Authority and an outstanding figure in air transportation, has been named president and general manager of Southwest Feeder Airlines, Inc., according to an announcement made recently by officials of the company, which has filed on a system of airmail, passenger and express feeder routes in Oklahoma, Texas, Kansas, Iowa, Missouri, Illinois, Arkansas and Louisiana, and has applied to the Civil Aeronautics Board for a permanent Certificate of Convenience and Necessity to operate the routes.

Alexander T. Burton | Jim Rivers | Leland R. Taylor | W. D. Van Dyke | Louis F. Malkovsky | Tom Beck | W. T. Piper

ELECTROLYTIC METHOD FOR TEMPLATES

(Continued from page 23)

by pressure cylinders at each end. Flexible electrical contact strips on each adjacent surface allow the current potential to be applied between master layout plate and copy plate.

THE COMPLETE electrolytic unit can be built for about $5,000. Aircraft plants whose hydropresses have some idle time can adapt them to handle the electrolytic transfer process at nominal expense. This step would reduce the first investment and make the benefits of the new process available without delay. In very short time an unskilled employe can be taught to make the transfers.

Total cost of copying template layouts by electrolytic transfer is found to be under 10 cents per square foot, as against costs ranging up to 60 cents a square foot by photo-loft-template method and $1.00 a square foot by hand. It is estimated that the new process, if operating full time, will pay out on the press investment in less than a month.

Lockheed is making this new process available to other manufacturers under a licensing agreement. Inquiries should be addressed to the Patent Department, Lockheed Aircraft Corporation, Burbank, California.

TRAINED OR TRIMMED?

(Continued from page 13)

records on 50 or 75 graduates? Then remember Warning No. 6:

Insist on seeing complete employment figures for 50 of last year's graduates. If the school can't furnish these records for any reason, better move slowly. There's a dusky-hued male down amongst the cordwood!

—AT "AVIATION HEADQUARTERS"

Those who fly have discovered that there is one place in New York City where they not only meet more of their friends but meet them more often—*and it's The Lexington!* In fact, so many of the aviation fraternity congregate at "New York's friendly hotel" that it's popularly regarded as the industry's metropolitan headquarters. On our part, we are particularly proud to have you stop with us—and wish you many more "happy landings" here!

Charles E. Rochester, V. P. & Mgr. Dir.

Hawaiian Room

Hotel Lexington

LEXINGTON AVE. AT 48TH ST., NEW YORK, N. Y.

Primarily, a good mechanic school is a group of well-qualified instructors—men who have built aircraft for years and can impart to you the cream of their expert knowledge. Further, it must employ enough full-time instructors to insure the individual attention so vital to thorough instruction. Here's Warning No. 7:

Check the number of full-time instructors and part-time teachers. Ask for a printed or typed specific record of each instructor's education, employment in aircraft plants, and teaching experience. Any reputable school will gladly furnish this evidence. In case of hesitancy or vague statements, better shift into reverse and back out!

How Old Is Old Enough?

I have just discussed one mechanic school that is 12 years old. But a school operating as long as five years has probably done a good teaching job for its students, or it wouldn't have lasted. Even some schools in the one-year bracket are proving to be good investments for men who must learn and then earn.

When it comes to institutions which have been operative less than a year—there you're in the great shadowland from whence many would-be mechanics emerge jobless and broke. So give special heed to Warning No. 8:

Know exactly when the school was established and how long it has operated uninterruptedly as an aviation-mechanic school. Age of a branch school is not vital, provided its parent school has attained adequate age. But only a perfect record on all other factors would warrant enrollment in a newly established mechanic school. Your interests might suffer from its growing-pains!

The eight factors I've stressed give you plenty of food for thought and action. Applying that sound yardstick to every mechanic school you consider, you can hardly go wrong. And if you'd still enjoy seeing a list of schools rated high by various reliable sources—

Watch for the April article. In it I will give names and locations of mechanic schools from which a dozen of the largest aircraft companies have employed graduates. I will provide a list of schools carrying governmental approval. And if possible I will include a list of schools approved through miscellaneous but dependable channels. If a man can't act safely with all this specific information before him, he isn't geared for aviation in the first place!

NEW EQUIPMENT REVIEW

THE WEATHERHEAD COMPANY, 300 East 131st Street, Cleveland, Ohio, is offering an attractive four-color floor merchandiser to dealers in aviation supplies. The cabinet has three shelves on which are displayed in effective manner a well-proportioned selection of aluminum fittings, brass fittings, aluminum pipe fittings, inverted brass fittings, and SAE brass fittings for both commercial and private planes. Only standard items ordered month after month are included. The items are attractively displayed, and this merchandiser should prove a valuable asset to the dealer.

HANCODUR, a new, longer-wearing alloy for valve stems and bonnets, is announced by the Hancock Valve Division of Manning, Maxwell & Moore, Inc., Bridgeport, Conn. Breakdown tests by the makers are said to have shown that valves made of this alloy may outwear other stems and bonnets six times. Hancodur is claimed to have a tensile strength of 90,000 lbs. per square inch plus a self-lubricating characteristic resistant to galling and wearing. Hancock Superfinished "500 Brinell" bronze valves are now furnished with Hancodur stems and bonnets at no increase in price. A bulletin giving further information on the new metal will be mailed upon request.

REVVING UP

(Continued from page 5)

The U. S. Army Air Corps has contracted for establishment of eleven new civilian operated bases for primary training. All of the eleven new contractors are in the South and Southwest. They are:

Lou Foote Flying Service, Stamford, Texas; Air Activities, Corsicana, Texas; Brayton Flying Service, Cuero, Texas; Pine Bluff School of Aviation, Pine Bluff, Arkansas; Oklahoma Air College (John H. Burke, et. al.), Oklahoma City; Graham Aviation Co., Americus, Georgia; Embry-Riddle Flying Service, Arcadia, Florida; Southern Aviation School, Camden, South Carolina; Rankin Aeronautics Academy, Tulare, California; Palo Alto Airport, King City, California; and Southwest Airways, Inc., Phoenix, Arizona.

The addition of these new schools brings to 28 the total of civilian-contractor primary training bases. By March 21, training of Army Air Corps pilots will be at the rate of 12,000 annually.

* * *

About the best news we have heard in a long time came out at Brownsville during the ATA engineering and maintenance conference. It had to do with progress being made by the National Aircraft Standards Committee in standardizing various aircraft parts. The committee, which is composed of technicians from the nation's largest airplane manufacturers, has already achieved uniformity on more than 150 parts such as rivets, anchor nuts and bolts. Scores of other items are up for standardization, while a pool of more than 2,500 extrusion dies has been arranged. Standardization will enable all manufacturers to use identical parts, which will be a fundamental factor in achieving mass production of military or any other type of aircraft. Bill Smith of Bell Aircraft Corporation is the national chairman of the committee, Henry Gledhill of Douglas, western division chairman, and J. T. Thompson of Glenn Martin, eastern division chairman. In our opinion no more important work than theirs exists today.

* * *

Speaking of standardization, an important chapter is being written at Houston in the new National Guard Hangar, which has been taken over by the Civil Aeronautics Authority's standardization school while the TNG is on active duty at Camp Bowie. Benny Griffin is setting up the base that soon will be training CAA personnel in instrument flying, precision acrobatics and maintenance procedure. Besides providing standardized training in these three categories, the school will also test out new airplanes and accessories as they come out, providing actual service conditions for all new equipment. The CAA instrument training school has been moved into the new quarters from Detroit. A total of fifteen men will be stationed permanently at the Houston airport base.

* * *

Our worthy contemporary, American Aviation, asks the CAA to plan something outstanding this spring to mark the opening of the Washington National Airport. We're agin it unless it's for the sole benefit of the New Dealers who should go out for the opening, hiding their heads in shame for not giving the nation's capital an adequate airport long before now. We're in favor of making the Fourth Annual Southwest Aviation Conference in Wichita (April 24, 25, 26) the outstanding aviation event in 1941. It's far enough away from Washington so's the aviation crowd can feel comfortable.

Announcing

AIRCREDIT INC.

AIRCRAFT FINANCE EXCLUSIVELY

Southwest Owned and Operated

AIRCREDIT Inc. presents an entirely new and complete Aircraft finance service—based on the needs of our Southwest Distributors, Dealers, Fixed Base Operators and Private Owners.

Financing

★ New and Used Aircraft—motors, parachutes, instruments, accessories, repairs, overhauls.

★ Non-insurance or Insured finance plans (the latter including Ground and Flight risks), Public Liability, Property Damage, Passenger Liability Coverages.

★ Distributor and Dealer accommodations.

★ Special plans for C.P.T.P. operators.

"SIXTEEN YEARS of time sales finance experience with policies designed to meet your financing problems in a spirit of helpful intelligence and co-operation."

SOUTHWEST DISTRIBUTORS — DEALERS: Write or call today for your complete Finance Kit, which includes the New Pre-Determined Balance Rate Chart.

(PRIVATE OWNERS—Ask your dealer for AIRCREDIT financing or write us direct for individual service.)

Gilbert Harrison, Jr., *President*
Sterling Holloway, *Vice President*

AIRCREDIT, Inc.

Marshall Cloyd, *Treasurer*
Gene Royer, *Sec.-Gen. Mgr.*

Airport Terminal Bldg. — Meacham Field — Fort Worth, Texas

Day and Night Phones: 6-1709—2-5639

PORTS OF CALL

Correspondence from Airports and Airways

Big Spring, Texas

Third CAA School Completed

The third CAA ground school offered at the Big Spring High School has been completed. Ten students were chosen to receive the flight course at the municipal airport. Those receiving scholarships were Charlie Kaub, Billie Suggs, Raymond Plunkett, Vernon Herd, Sammie Ray Langford, Barney K. Edens, Earl Richardson, Norcliffe S. Meyer, Cecil Allen Weaver, and Horace Dearing. Billie Suggs, teacher in the Big Spring Public Schools, was the only girl to receive a scholarship. Flight instruction should begin in the very near future.

Dick Simpson, rancher near Big Spring, soloed early in February, and probably will not be long in receiving his private license. Rowe Verschoyle recently took his private flight test in Hobbs, New Mexico, and received his private license with a 2S rating. He has been a member of the recently disbanded Ace Flying Club.

Phillip Norris of Lamesa has been taking several long cross country hops in his Rearwin Ranger since passing his private flight test. He says that it's surprising how often the compass is correct.

E. A. Parker, Melvin A. Williams, and Porter Loving were graduated from the commercial refresher course early in February, and J. Ernest Batson, Amarillo, and Clinton McCarty, Stillwater, received advanced instructor reratings.

A recent visitor was Dr. Cliff Wagner, Muleshoe, Texas. He plans to tour all South American countries in his geared 75 Lycoming Funk. He was held up here several days due to poor weather. Dr. A. C. Scott of Temple stopped in at the airport recently on his way to Lubbock.—*RUTH FOWLER.*

Birmingham, Alabama

Increased Airline Service Approved

John T. Crofford, manager of Southern Airways, Muscle Shoals, Ala., reports the following CPT students have passed their flight tests for private pilot's licenses. J. McDavid Cunningham, Charles W. Lindsey, Roger N. Wagner, and Laura Ellen Perritt.

Vann D. McCracken, Southern Airways instructor, announces the enrollment of the following students for mechanical courses at the Birmingham Municipal Airport: J. W. Wilcoxson, Leeds, Ala.; Bill Dew, Greensboro, Ala.; Jon Whiting, F. L. Shelnut and H. F. Sandifer of Birmingham; E. W. Bell, Americus, Ga.; Burt Howard, Leeds, Ala.; Karl Everett, Marion, Tennessee.

Frank W. Hulse, president of Southern Airways, has announced the appointment of Lt. B. M. Cornell, head of the Aeronautical Engineering Department at Auburn, as director of the Ground School at Camden, S. C., where Southern Airways is starting one of the Air Corps primary training schools.

Mr. Hulse further announced that 40 per cent of the work on the barracks, mess hall and hangars had been completed and the remainder would be finished in time to take care of the first quota of 100 students assigned to the school by the Air Corps.

The new airline service approved by the Civil Aeronautics Board in Washington brings Birmingham's daily schedules up to twenty.

Eastern Air Lines stop here on the New York to New Orleans flight and PCA's new route from Pittsburgh to Birmingham gives local air travelers service in almost any direction they want to fly and brings all of the large eastern and mid-western cities within only a few hours' flight.

A petition of Delta Airlines for a route between Atlanta and Cincinnati, recently granted, will also improve connecting service out of Birmingham by air.

Seems as though the local press is gradually taking wings. Harold Helfer, Barkley Dillon, Rebecca Franklin, Pete Little—and now Bob Lucky can be counted among those who have flown over Birmingham.

Mauray Farrell, WAPI radio announcer, was "on the air" instead of "in the air" recently with his flight instructor, Chad Bridges. Seldom does a student enjoy the privilege of quizzing his teacher, but with Van B. McCracken, instructor in the mechanics course, furnishing information as to how the planes at the Municipal Airport are kept in flying order, and Chad Bridges giving a few details on how instructors turn students into pilots, the interview proved most interesting.

It took all afternoon and up until the wee small hours of the night to find out the hobby of W. C. Miles, maintenance superintendent of Delta Airlines. During an interesting account of the many duties and operations necessary to keep the 21 passenger planes flying on schedule, Miles forgot his work for a moment and let it be known that he collects cocktail forks. All that can be said is that any man with as perfect record in his work as Bill Miles has to his credit is entitled to any hobby he may desire.

—*EARLE WHEELER.*

Corpus Christi, Texas

Airport Expansion Program Approved

Work has started on a control tower foundation at Corpus Christi's municipal airport, named for its first manager, the late Cliff Maus.

Equipment for the tower is being transferred from Houston here, and with the advertisement for bids on a new 4500-foot runway, and drainage structures for existing runways, Corpus Christi will be assured of a first-class, all-weather airport. All of which leads up to the fact that the airport expansion program was approved.

Another expected advancement is the recommendation of the Congressional house finance committee to expand airmail routes between Houston and Brownsville. This would provide Corpus Christi with two more airmail schedules daily.

The $30,000,000 naval air station, ten miles south of the city at Flower Bluff, will be dedicated March 12. Secretary of the Navy, Frank Knox, and a batch of navy and civilian bigwigs will be on hand. Training will start April 1. Incidentally, Joe Bleymaier, transportation agent for Eastern Air Lines here, was the first candidate for a cadetship at the new training station to pass the physical examination for entrance. He is one of the CAA's CPT program students.

—*BYRON B. BUZBEE.*

Dallas, Texas

Army Engineers Establish Dallas Headquarters

Work on the $365,835 Love Field improvement program, the first WPA national defense project in the Dallas district, has been started, and Gus W. Thomasson, district WPA administrator, urged the workers to speed completion of the project, which is "essential to the defense of our nation."

Improvements to be made include the enlargement of the airport, extension of runways to the new addition between Lovers' Lane and Gilford, and installation of drainage facilities.

According to an authoritative spokesman for the Dallas Aviation School, the army air corps flying detachment at Love Field will, in all probability, be retained at this city instead of being moved and merged with a new training base to be opened in March at Brady.

"We have been anxious to retain the base at Dallas because of the elaborate system of barracks, hangars and related equipment we have built. It would be unsatisfactory to have to re-establish those facilities," the spokesman said.

Improvement of roads leading to Hensley Field and the North American Aviation plant near Grand Prairie is being sought by County Commissioner Vernon Singleton.

HUMBLE
HUMBLE AVIATION PRODUCTS
Reliable Flight Companions

Singleton began negotiations with the Texas and Pacific Railroad for right of way to straighten Hampton Road and widen Belt Line Road and Cupian Drive.

Simultaneously, Commissioner Tom Field asked the Rock Island Railroad to aid in building an overpass on Inwood Road between Industrial Boulevard and Northwest connection.

A tentative agreement under which the city will erect a $30,000 addition to the Southwest Airmotive's plant at Love Field has been reached by City Manager James W. Aston and officials of the plane repair firm.

United States army engineers have completed the removal here from Little Rock, Arkansas, of their southwestern division headquarters. The Dallas office, in charge of Col. S. L. Scott, will supervise the construction of aircraft plants, flood control projects and other government enterprises for national defense.

The office also will supervise the construction of bombing plane assembly plants the War Department plans to erect at Fort Worth and Tulsa for operation by aircraft manufacturers under management contracts. Five district offices will be under supervision of Colonel Scott. These are at Galveston, Denison, Caddoa, Col., Tulsa and Little Rock.

The new Diesel naval plane motor being developed here by the Guiberson Corporation is expected soon to be ready for submission to naval authorities for use in observation planes.

Company officials predicted that use of such engines in observation craft carried by naval vessels would eliminate the possibility of an American warship meeting a fate like that of the German Graf Spee, which was caught with her planes on deck. Since the fuel consumption of a Diesel-powered plane is about half that of one using gasoline, it would be able to keep guard for its vessel all day, it was explained.

The forty-student quota for S. M. U.'s new primary CAA flight course has been filled and the group has begun ground school instruction. Actual flight instruction will follow in about a week, officials at Mustang Aviation School, where thirty of the students will be trained, have announced. The remaining ten will be given lessons at Hudson Flying Club.

Dallas Aviation School has contracted for the advanced plane instruction.

A class of thirty-six flying cadets has been sent from the primary training base at Love Field to the new advanced air corps center at San Angelo where it will become the first to receive instruction there, according to Capt. Harold Gunn, commanding officer of the local detachment.

Iraan, Texas

Former Instructor Now Ferrying Bombers

The Iraan flying students are mourning the loss of Instructor Jack Fitzgerald, who is now flying bombers across the high seas for Uncle Sam. We are indeed fortunate, however, to have Jack Chinn from Odessa.

Iraan and Sheffield are proud of H. C. Noelke, Jr., who is our "only" student to receive his private pilot's license. And Mr. Noelke, in turn, is proud of his sister, Jacqueline, who received her solo license in San Angelo, recently.

We are pleased to announce a new student, Coy LeMeilleur, who lives in Texon, Texas, but comes to Iraan each Saturday and Sunday for his instructions.

We have three Noelke students, and we believe they are shopping around for an airplane of their own.

The Iraan Airport, on the bank of the Pecos River, is indeed an active one. Our youngest student is 16 and our oldest is 49—but don't tell him I told you.

Eugene Alexander, M. E. Parker, M. B. Noelke, and Howard R. Johnson are reporting nice times on their cross-country trips. We are still wondering why M. B. was grounded in Upton County.

Howard R. Johnson and Eugene Alexander certainly "look" like pilots in their new flying suits recently purchased from Air Associates.—*LUCILLE M. JOHNSON.*

Jackson, Mississippi

New Airport Planned

Presidential approval of a $170,000 WPA airport project allotment will give this county three modern fields. The newest port will be located approximately seven miles southwest of the present municipal port, Parks Air College, in collaboration with the U. S. Army Air Corps, being situated seven miles northwest.

Pending approval from the district WPA offices, and CAA, work has been started. The project includes grading, draining, and paving. An additional allotment is expected to be sufficient to further develop the field and include six paved runways, ranging from 3,500 to 6,000 feet in length.

Hinds County and the CAA are named as sponsors of the project. All private flying activities now being carried on at the Municipal Airport, soon to base a 2,300-man army unit, will be moved to the new county port as soon as it is available.

Bud Moore, Shelby Maxwell, and Harold Bell, instructors in charge of the winter CPT program, announce 13 students as having received private license. From Hinds Junior College: Dudley Buford, George Anderson, Henry Cantrell, Harold Majure, Howard Cotten, and Mary Barnes. From Milsap College: Herbert Carver, Jeff Stephens, Jack Wright, George Wilson, William Ridgeway, Bart Robertson, and Eugean Jackson.

Under quotas for the new program which began recently, Milsap was granted 20 enrollees; Hinds Junior College was given 15.

Mary Barnes, the second local lass to finish in the CPT program here since its inauguration last year, is now attending Mississippi State College, where we understand that she plans to try a few classes in the Aeronautical Department.

Ed Fistor, of Chicago, has been transferred here and will be in the radio department of Chicago & Southern. Prior to his airline radio work, Fistor was located with a division of the Texas Corporation in Downing, Colombia.

Kellogg Falls has been transferred to the position of radio chief in Shreveport for Chicago & Southern's new station there. For the past two years Falls has been located here.

Howard Le Blanc, formerly of Shreveport with Delta Airlines, is now joint station agent here with Delta and Chicago & Southern.

W. J. McCoy, of West Palm Beach, Fla., formerly with Eastern Airlines, is new on the list of airline operations personnel here.

Mr. and Mrs. H. G. Kitchens are at home to friends after a brief honeymoon trip to the Gulf Coast. Mrs. Kitchens was formerly Miss Sibyl Aust of this city. Kitchens is employed in airline operations here.

—*ARCHER S. ALSTON.*

Kansas City, Missouri

Fourth CPT Program Awarded City

Warren E. Blazier, former aviation commissioner of the Chamber of Commerce, was guest of honor at a dinner at the Bellerive Hotel recently. Mr. Blazier is leaving Kansas City to become personnel director of the Beach Aircraft Corporation, Wichita, Kansas.

Mrs. Leah Shepherd, 4229 Oak Street, Kansas City, obtained her commercial license recently and is now working for an instructor's rating. Mrs. Shepherd is the first woman to obtain a commercial rating here since 1929.

The traffic bottleneck at Municipal Air Terminal has been eliminated by the opening of a new underpass. The old underpass is used now only for outbound traffic.

W. P. Odom has taken over the Kansas City agency for the Culver Cadet plane with headquarters in the LaGrone hangar at Municipal Air Terminal.

Betty Cox, diminutive member of the K. C. Unit of the Women's National Aeronautical Association, has been forced to learn the virtue of patience. Betty prepared for her flight test by weeks of practice, but when the eventful time came bad weather closed in and the test was delayed until her nerves were ragged. Then one day the sun broke through, she strapped on a 'chute and climbed into the cockpit. When she came down she was a licensed pilot.

Kansas City has been awarded a fourth non-college civilian pilot training program. Training will be at the American Aeronautical Institute, 2425 McGee Street. Grove Webster, head of the private flying section of the CAA, stated that Kansas City is the only city to be awarded four programs.

T. B. Wilson, Chairman of the Board,

Everybody's asking about aviation's latest

The McGUIRE Safety Pilot

A proven instrument with more than 2000 hours of successful flight use.

Write us—giving airplane make—and we'll send you the complete story.

INSTRUMENT DESIGN, INC.

ROY McGUIRE, Pres. WALTER BOES, Vice-Pres.

3001 Salem Avenue, Dayton, Ohio

Transcontinental & Western Air, Inc., has announced the establishment of offices in the Airlines Terminal Building, Park Avenue at Forty-second Street, New York City.

—*MARION M. NEWELL.*

Lafayette, Louisiana

Leo Gros Sponsors Aircade

Through the courtesy of Leo J. Gros, proprietor of the Lafayette Flying Service, a 7-plane aircade of the Service fleet took to the air recently on a four-stop "Good Will" air tour with the following pilots and guests: Leo J. Gros, Cyril P. Gerac, Felix H. Foreman, Jesse M. Parker and Mrs. Parker, Elmer Harris of Jennings; Dannie Gilbert, Vincent Sonnier of Crowley; R. L. Briant and Mrs. Fanny Leonpacher of Lafayette; Miss Lucille Langlinais, also of Lafayette.

A stop was made at Patterson, where the party had breakfast with M. L. Harrison, a former student of the Lafayette Flying Service. After breakfast the aircade flew to Houma, accompanied by Chester Baudoin of the Harry P. Williams Memorial School of Patterson with Dr. Charles C. Foti as passenger. After dinner at Houma, the next stop was Donaldsonville where the visitors received a royal welcome. Then on to Baton Rouge where much activity was in evidence with 70 LSU students learning to fly.

Mr. Gros said: "This aircade was to let neighboring cities see what Lafayette has accomplished, and the work that is being done in furtherance of training Southwestern Louisiana Institute's CPT students and, also, the many private students."

Those who completed the last 1940 CPT course are: Beverly A. Babb, Jr., Charles E. Beall, Jefferson J. DeBlanc, Joseph Greco, Lawrence M. Haynie, Mildred L. Iles, Delbert D. Jackson, Warren G. Pickett, Herman B. Torry, Scott M. Alexander, Charles H. Burgess, Emile O. Fowler, John W. Franklin, Charles W. Kallam, Jr., John K. Nunn, Jr., Robert E. Roy, Richard O. Simmons, Yvonne Stafford. Let's wish them many happy landings.

The Lafayette Flying Service welcomes Eddie Ross back to port. Eddie is back with the Continental Oil Company, piloting a Lockheed 12, after an absence during which he was piloting planes for Douglas Aircraft from California to Canada.

Visitors at the port during the past month include Dude Camden, Ace Corbin, Art Chapman, Bob Allen, Bob Wight, J. M. Harrison, Lieut. Brown, and Lieut. Smith.

—*MRS. F. V. HUTCHINSON.*

Miami, Florida

Carlstrom Field Reopened

More than one hundred students are now enrolled in the Embry-Riddle Technical school, according to Lt. Thomas E. Halpin, school director. The groups in the initial welding and sheet metal classes are nearing completion of their courses, and are almost ready to take positions on the production line. Aircraft and engine mechanic's courses have been added to the curriculum, and classes are filling rapidly.

Virginia Morrow, private pilot and Wilbur Sheffield, ground instructor for ERCO, were recently married in the school's hangar at municipal airport. Lt. Van Burgin was best man, and groomsmen were flight instructors Bob Johnston, Max Husted, Jack Wantz and Jimmy Cousins. Practically the entire airport attended the gay reception at the Morrow home on Hibiscus Island after the wedding.

Many a World War I pilot will experience a twinge of nostalgia as he hears of the reopening of Carlstrom Field at Arcadia, Fla., unused since the training days of 1917 and 1918.

The Riddle Aeronautical Institute has completely transformed the site of the old field into a modern air training base that, when completed, will be the talk of the country. Work on the hangars, classrooms, barracks and field is rapidly nearing completion according to John Paul Riddle, head of the school. Len Povey will be in charge of operations at Arcadia, and he is now busy lining up his staff to handle an Army training program.

Operations will continue at both landplane and seaplane bases of the Embry-Riddle Company in Miami.

Several new instructors have been added for the winter CPTP primary and advanced training. They are: Andy Stinis, Gordon Mougey, Frank Frugoli, George May, George Dudley, Bill McDougall, Roscoe Brinton, Max Husted, Howard Wade, Jim Burt, George Eckart and Clyde Ellis.

In an election held recently, the Miami Air Pilots' Association voted Dr. W. H. Kirkpatrick, president; Tine Davis, vice president; Frank Dew (lightplane enthusiast), secretary; and Julian O'Neal, treasurer.

Contrary to many gloomy prophecies made when the Club was first organized over two years ago, the MAPA today boasts a membership of over one hundred and a very solid bank account. Much credit must be given to past presidents Earl Albury and Karl Voelter for their untiring and successful efforts in keeping things going through the tough periods.

Changes: Van Burgin now operations manager for ERCO . . . Bob Johnson, chief instructor and secondary flight examiner . . . Kay Bramlitt, secretary to Capt. Povey at Arcadia . . . Charley Ebbets, (ex-Miami Daily News) photographic instructor . . . Jack Wantz, instrument instructor.

—*AL SHULTZ.*

Odessa, Texas

Examiner Praises Odessa School

Our second CPT school was recently completed. It was pronounced highly successful by Dr. Smellie, CAA inspector, who gave the final examinations. The scholarships are to be awarded as soon as confirmation of grades arrives here from Fort Worth.

Jack Chinn received his flight instructor's rating early in February . . . Bob McKissick is now connected with the San Angelo Flying Service.

Jeff Ezzell of Wink, Texas, and Lawrence Peterson of Odessa are the two students selected to receive advanced CAA training from the first CAA school.

Dr. E. F. Smellie, scientist and professor of engineering in the New Mexico University, who recently gave the CPT students their final examinations stated: "Odessa has an unusually fine school, and it is meeting the two-fold purpose of the plan. First, it is finishing students who will in turn become fine instructors; second, it is feeding both Army and Navy flying schools with advanced students who are making good. There are no better schools that I have seen—and I have covered a great many in several states."

Graduates of the ground school were John C. Williamson, Midland; Vick Young, Crane; Fowler Daniel, Wickett; N. Roseilus, Midland; Morris Thompson, Wickett; Hans Winkler, Midland; John Pringle, Midland; Harley Adamson, Midland; Claude Martin, Crane; Ken Germand, Midland.

Odessa graduates were Lola McDonald, Wade Slough, James McClung, Emmett Thompson, Billy Steed, Robert Robinson, Margaret McClung, Ruth Fernandes, John Clyde Foster, W. B. Smith, Mrs. Eugenia Lyon, Florence Myer, Mrs. T. L. Miller, Glen Leroy Clark and Mrs. Annie Lulu Clark, Bill Shattauck, Raymond Chance, Norman Martin, Hugh Weathersby.—*ROB ROBINSON.*

San Angelo, Texas

New Flying Club Here

Bill Box, San Angelo, recently flew a new Cub Cruiser in from the factory for the San Angelo Flying Club—a new club with the following members: Mr. and Mrs. Jack Allison, Tommy Athenas, Bill Box, Jo Bratcher, H. R. Calhoun, B. F. Harris, Buddy Hayden, D. C. Holman, Le Roy Johnson, W. G. Briley, Jr., A. H. Meyer, Collier Nogues, M. H. Raiborn, Frances Simms, Fern Mathews, Carroll Thompson, and Loncie Tucker (all of San Angelo), and Mrs. Bill Benchoff of Menard, Texas.

The following CPT students have received their private licenses: Buddy Haydon, Frank Proctor, Douglas Bryant, Jr., Miss Jackie Holmes, Orville Guenthner, Jesse Rhoden, Lewis Wilson, and Neill DeLaney. Charles Durrin, a private student, also received his license. Inspectors Klienoder, Waage, and Meyers gave the tests.

New solo students are: Dr. R. M. Finks, J. Ardell Thomas, Miss Jacqueline, and Dan Klienman of the *Jaycee Flying Club*, and W. D. Kring of the *Concho Valley Flying Club*. Miss Joyce Therwhanger is a private student.

The Waco F-2, belonging to Mr. Ernst Ruffini, a newcomer here, is being swamped for time. Buddy Haydon, Tom White, William P. Wakefield, Montie Lane, and W. D. Schaaf already have soloed in it. Mr. and Mrs. Ernst Ruffini are both new students.

Solo students in the San Angelo Flying Club are: Jack Allison, Buddy Hayden, Bill Box, D. C. Holman, and Carroll Thompson.

Mr. and Mrs. Bob McKissick have moved here from Odessa. Mr. McKissick is the A & E Mechanic in the San Angelo Flying Service.

Frank L. Jones and Gay Copeland went to New Castle, Delaware, to get a new Bellanca purchased by Mr. Copeland.

—*JOYCE THERWHANGER.*

San Antonio, Texas

Airport Bond Issue Passed

As promised in the last issue of SOUTHERN FLIGHT, your correspondent is pleased and happy to report the passage of the new Municipal Airport Bond Issue, assuring San Antonio of one of the finest airports in the United States. This new airport is to be located north of San Antonio, about the same distance from town as the present location. The change was necessary due to the tremendous amount of military flying now going on. The new location will lessen the hazards to both civil and military aviation.

Work on the new airport has already started, and at the present time it is our understanding that all the operators on Stinson Field will move to the new airport. Hangar Six, Inc., United Aero Corp., and Modern Air Travel are all looking forward eagerly to the completion of the new field so that operations there can be started as soon as possible. Stinson Field, the present location, is not to be abandoned, however, having been leased to the Army for another base field, located, as it is, in a direct line between Randolph, Brooks and Kelly Fields.

United Aero Corp. and Hangar Six, Inc.,

have completed their CPT programs and are now busy getting their equipment in top form for the new rush. With all the indirect advertising aid given aviation by the Air Corps units in San Antonio, the young people of CPTP age are only too ready and willing to enroll. Many of them present a very picturesque aspect—bringing the modern method of travel in close proximity to the ancient methods—what with donning parachutes over 10-gallon hats and "Texas Cowboy Boots." From all records, it appears that the boots help with horsepower as well as with horses.

The Sales Manager of Hangar Six, Inc., recently returned from the Cub factory in Lock Haven, accompanied by Ted Shirmacher who got some real cross-country navigation experience in leading the two new Trainers back from the factory. The Sales Manager is very outspoken about the new beauty of the 1941 models shown, and reports that a very pleasant trip was had by all. A Distributors "Cub-vention" helped to break the monotony of the long grind back.

Hangar Six, Inc., is sorry to report that Fred Thomson and Henry T. Fischer, both instructors, are no longer in San Antonio. We are very proud of these two boys, as they are now instructors in army primary school, helping in the national defense of the U. S. A.

—*L. E. MOSER.*

Shreveport, Louisiana

Sportsmen Pilots' Tour Calls Here

Chicago and Southern Airlines is now a part of Municipal Airport in reality. With Kellogg Falls in charge, the radio equipment is now temporarily installed in the office leased from the city. No ships are expected to make regular runs until March 15th or later. A test run was made through here, but the ship was not allowed to land due to the work being done on the field.

Twelve ships with forty-six passengers made up the sportsmen pilot tour which passed through here. Included were R. D. Clemson's Beech 180, piloted by Lloyd Oyst; H. F. Wood's Beech; R. J. White's Howard; and three Wacos owned by C. A. Thigpen, Jr., Charles A. Hinsch and W. C. Davis, respectively.

Sammie Titone attended the bowling tournament at Knoxville, Tennessee, as a member of the Shreveport Bowling team. Badgett Flying School is trading three Cubs in to get four new Cubs. The three Ryans went to Dallas for major overhauls before undergoing the gruelling experience of training more advanced school students.

George Vaughan, who recently went to Spartan to receive his advanced rerating, has charge of the Apprentice-Instructor course. Joe L. Messina, chief instructor of the primary division, is really busy these days.

—*MARJORIE HARDMAN.*

Terrell, Texas

Airport Improvements Continue

Visiting flyers are dropping in more frequently these days. Word has made the rounds that the pasture being used by Terrell's new flying club is potentially the finest airport site in this section of the State. It's a relief, visitors say, from the many new but tight fields in this region.

Graded runways, the addition of a small office and the removal of a fence on one side of the field are among the more recent improvements.

CPT talk is being heard at all sessions of the club; Texas Military College is virtually assured a program in June. It is planned for the students to operate from the club's airport.

In the solo column are the names of Miss Annie May Gilbert, Lieut. A. E. Millot, Dr. L. W. Johnston, Bill Cardon, R. E. Stout, Raymond Orr, O. Scott, Clarence Inglehart, Orville LaRue, Jim Rushing, Charlie Holton, Dr. T. S. Howell and H. C. Sorrells.

The city's rapidly mounting interest in flying has prompted Instructor Doug Pettitt to buy a Piper Franklin 50 to work with his Cub 40. Doug has moved his family here from Greenville. He's a fixture now, and his blackboard work is boosting interest in the club's regular Friday meetings.

First out of town student flyer to shoot at this city as a cross-country destination was Miss Sarah Shelton, who hopped a Luscombe Trainer from Love Field, Dallas.

An inspector from CAA headquarters is slated to look at the site proposed by the Kaufman County Commissioners' Court for a huge defense airport. The site is about three miles south of the club's field.

—*C. NETHAWAY.*

Tulsa, Oklahoma

Second CAA Program Near Completion

Gail Horrall is the "Happy-Go-Lucky" girl running around the airport these days—and why shouldn't she be? Her husband, A. M. Horrall, who owns the Commercial Airport, has just purchased a new Ercoupe for her. She is keeping her fingers crossed in hopes she can fly to Albuquerque, New Mexico, for the WNAA convention, April 30th. Gail has been a member of the "Ninety-niners" since 1934, and hopes to organize a chapter in Tulsa sometime in the near future. Those eligible at the present time are: Barbara McMinn, Betty Whitlow, Margaret Ann Hamilton and Virginia Nordlund.

For all the "gum chewers" who can't fly without chewing gum, John Armstrong, manager of the airport, has installed a gum machine—a penny a stick.

Some of the work will now be lifted from the shoulders of Kenneth Burke and Harvey Young, owners of the Tulsa Flying Club, as they now have an assistant, DeLoris Kiester.

The second CAA program of the Tulsa Flying Club is near completion. The students who have received private licenses to date include: Betty Whitlow, Margaret Ann Hamilton, Bruce P. Badger, Ralph D. Stauffer, Hardy E. Glenn, Hal Richard Drackert, Marion Brodsky, Wayne Howard Walker, Thomas Anthony Clote, James U. Hunter, Jr., Deen Hersal Chrislip, James Kendall Johnston.

The six students remaining to be tested by Major R. O. Lindsay are: Gale Roscoe, James Marion Updike, James Richard Rule, Victor Harmony, Jay B. Wood.

Tom Henry Frye, who was an instructor for the Tulsa Flying Club, is now in Oklahoma City taking the advance training at the Oklahoma Air College.

George Montgomery, another former Tulsa Flying Club instructor, is now taking the refresher course at the Spartan School. Upon completion he will be an army instructor for the school.

Congratulations to Roland Haley and A. O. Lawson, who have received their commercial licenses. Haley will advance his training by taking the refresher course for his instructor's rating.

D. P. Williams is now in Dallas taking an intensive course of instruction at the Dallas Aviation School. Williams learned to fly under the CPT program through the Tulsa Flying Club. He plans to become a ferry or airline pilot for Canada.

—*JONNIE LOUISE LAIRMORE.*

Two young Tulsa lasses who have just received their private certificates through the Civilian Pilot Training Program are Betty Whitlow (in plane) and Margaret Ann Hamilton. Their instructor, Tom Henry Frye, is shown here giving the do's and dont's in starting an airplane engine.

Tyler, Texas

Eighteen CPT Students Graduated

The third CPT course closed here with the graduation of 18 students. These include: Bernard Clayton, Miss Laura Louise Glenn, Paul Hill, James Ingram, Blair Mercer, James Newsom, Oscar O'Neill, David Williams, Edmon Arvin, John Burns, Miss Ruth Ellen Dailey, Howard Dodd, Jr., Arthur Exum, Claude Hall, Jr., William Hotchkiss, Jack Pounds, Curtis Williams and Raymond Cook.

This brings the total number of CPT pilots trained here since last summer up to 57, all without a single accident.

The same group—E. A. Lawver, ground instructor; O. C. Palmer, regulations instructor; Russ Finefrock and Eddie Horton, flight instructors—have charge of the new class.

At least two of the CPT students who received their instruction from Russ, are now in the Canadian Air Force. They are Bill Bowlen and Donald Saleh. In addition to these, five others are in the United States Air Corps. They are: Tommy Beaird, Edward McIlheren, Oscar O'Neill, Bryan Kilpatrick and Odell Myers.

The Gipson and Wofford Cub has been sold to Wayne J. Smith and Mr. Culwell, of Cisco, Texas. The space in the hangar has been filled by Paul Watts' Cub 50, purchased from Elmo Penn of Kilgore.

The Rearwin owned by Eddie Pruitt has had its face lifted with the installation of a brand new motor, cables and what not.

J. O. Womack, general manager of Air Activities at Houston, has flown a Humble ship in twice lately. Congratulations on his new interests in various parts of the State, and a hearty welcome anytime.

The trend of local pilots this month is definitely southward. Virgil Steifer is at Air Activities in Houston for his instrument rating. Lloyd Graham is leaving for Grand Prairie, and after that he plans on being with "Toots" Womack. Also, Louie Dickeson will be going down soon, and several other pilots have hopes of going.

Howard Naylor, who needs no introduction, was a recent visitor at port. Howard will be associated with "Toots" soon, as an army instructor.—*ELSIE GIPSON.*

McCamey, Texas—W. T. D. Flying Service is establishing a free ground school to all who are interested in flying. The course will be held in the McCamey High School under supervision of Thurman M. Jasper.

Three new planes have recently been purchased by McCamey flyers—a Cub to Pinky Edwars; a Porterfield to W. T. D. Flying Service; and a Porterfield to the Permian Basin Flying Club. Club members are Wallace Littlejohn, R. M. Gillette, Thurman Jasper, Kenneth Babcock, and Fred Brunson, of McCamey; W. R. Price of Crane; Oscar J. King, Bob Glendenning, Lawrence Shanor, and R. H. Johnson, of Iraan, Texas.

W. T. D. Flying Service recently sold a new 1941 Porterfield to the Comanche Flying Club of Fort Stockton, Texas. Club members are: R. E. Pfister, Chas. T. Smith, George Bradford, Martin Baze, Jr., Jimmy Hartsell, T. W. Gregory, J. H. Dyche, Joe M. Allen and Pete Slaten, all of Fort Stockton, Texas.
—*FRED BRUNSON.*

Marshall, Texas— J. O. Womack, former manager of the airport here, and V. G. Provenza, formerly of Marshall, visited relatives here recently.

Six bombers from Barksdale Field, Louisiana, landed here recently. One bomber was stuck and had to be pulled out by a tractor.
—*BILL AECHTERNACHT.*

WEATHER FORECASTING BOOKLET AVAILABLE

"Keeping Ahead of the Weather", written by Peter E. Kraght for Associated Aviation Underwriters, is the title of a concisely and accurately written booklet on the "Hows and Whys" of forecasting weather trends. Mr. Kraght, an American Airlines' Meteorologist, wastes no space or time in his text and the result is solid, factual material.

Illustrated throughout by sketches and by photographs of weather and cloud formations, the booklet covers every phase of flight control prediction.

Kraght's booklet will prove valuable to student pilots preparing for license examinations, and it is a "must" for pilots contemplating entering airline work or government military aviation. Business people interested in airline transportation will also find it highly informative.

The booklet is being distributed free of charge to everyone whom Associated insures. Others may obtain it at cost by sending fifteen cents in coin to *Associated Aviation Underwriters, 90 John Street, New York City.*

AIRCRAFT HIRING UP 300 PER CENT

A 300 per cent increase in the weekly hiring rate of eight major Pacific Coast aircraft manufacturers has been reported by the Aviation News Committee of the Aeronautical Chamber of Commerce.

Current weekly hiring rate in the major Pacific Coast plants is 2,765. A year ago the combined rate in the same plants was 692. Plants reporting are Boeing at Seattle, Consolidated and Ryan at San Diego, and Douglas, Lockheed, North American, Northrop and Vultee, all in the Los Angeles area. These plants now employ in excess of 83,000 men.

STEP UP PLANE DELIVERIES TO BRITAIN

A 600 per cent increase in delivery of military aircraft was the 1940 response of American manufacturers to Britain's appeal to "rush planes, planes and more planes."

This was reported by the Aviation News Committee of the Aeronautical Chamber of Commerce of America, which announced that nearly 1900 ships were turned over to Great Britain and Canada last year, as compared with approximately 300 in 1939.

The acceleration in delivery was particularly marked during the last half of 1940, the Committee said, basing its report on authentic government statistics, compiled in Washington.

REGULATION OF CHARTER OPERATORS

(Continued from page 8)

radio receiver. Radio transmitter shall be installed on planes when required by Airline Charter Service.

FLIGHT EQUIPMENT: On cross-country flights, pilot shall have following equipment: (a) Maps of all territory within 200 miles of the line of flight. (b) Latest tables of radio ranges and weather broadcast schedules. (c) Hand flashlight. (d) Air sickness containers, chewing gum and cotton. (e) Equipment required by the Civil Aeronautics Administration.

MAINTENANCE: Operator shall maintain planes in accordance with the requirements of the Charter Service and its inspectors, who shall have the right of inspection at any time.

When requested by a Charter Service inspector, Operator shall withdraw plane from service for repair, and shall not operate plane for hire until repairs have been completed and approved by Charter Service Inspector.

Plant shall be kept clean and neat, tanks shall be full and plane otherwise ready for immediate cross-country flight, except when in use, or undergoing necessary servicing or repairs.

The Charter Service may withdraw approval of any specific plane or pilot, and thereafter said plane or pilot shall not operate under Airlines Charter Service name.

PILOTS: Shall have 1,000 or more hours flying experience.

Shall only fly passengers for hire under weather conditions specified in classification assigned pilot by ACS.

Shall use every opportunity, when not flying for hire, to perfect or maintain blind, or instrument, flying technique, so that in emergencies they will be able to resort to this method of flight.

The sound approach to the problem by Lederer is reassuring in that the operator's interests as well as the public interests are being considered, with no dictatorial tendencies whatsoever in the proposal to set up safe operating standards and practices governing airplane charter service. In fact, with the intelligent co-operation of all concerned, we believe sincerely that once higher standards are set up, public confidence in charter flying will become such a force as to increase business so substantially in this phase of activity that it will be a major profit factor to the fixed-base operator in the years to come. It happened in the case of the airlines, and it can happen here.

CLASSIFIED ADVERTISING

FOR SALE: CESSNA C-34, cream-black, 1310 total, 63 since major, generator, lights, very clean, $2250. Northern Oklahoma Flying Service, Blackwell, Okla.

FOR SALE: One all-steel portable used HANGAR, suitable for Electra or smaller ships. 60' wide door opening. Bargain. Star Manufacturing Company, Oklahoma City, Oklahoma. Phone LD-701.

NEW BOOKS

AERONAUTICAL TRAINING, just out with the new selective choice examination questions and problems answered. Covers both COMMERCIAL and PRIVATE pilot examinations. Only $2.00.

INSTRUMENT FLYING. A different book, known as the "Howard Stark Edition." This authentic text fully prepares the pilot for the written examination on all subjects, including Radio-Telephone Operator's Permit. DeLuxe edition only $4.00.

FLIGHT INSTRUCTORS MANUAL. Prepares the pilot for his written test. Authentic and invaluable. Types of examinations shown. $2.00.

GROUND INSTRUCTOR. This important book has been sorely needed. Prepares for all ground instructor ratings—and more—it is especially written to enable the Instructor to conduct advanced aviation classes. Only $3.00.

AIRCRAFT AND ENGINE MECHANICS. New, bristling with the new examination questions. Type of examinations fully set out. Full regulations required by CAA. The outstanding book on these two subjects. $3.00.

NAVIGATION DEPT. OF COMMERCE PLOTTER. You will have a strike against you if you do not take this plotter with you on your test. It measures bearings, gives course to fly and distance in one operation. It measures drift and solves difficult off-course and Alternate Airport problems. Complete with large Navigation Note Book and instructions. $4.00.

QUIZ SYSTEM, Dept. SF.
Grand Central Air Terminal
Glendale, California.

ECLIPSE

JARDUR
Bezelmeter Aviation Chronographs and Aviation Accessories

SHELL

RCA

Having Trouble?

Scarab
WARNER AIRCRAFT CORP.

SPERRY

Do you have occasional or re-occurring problems that require scientific engineering and detailed inspection facilities?

BIG

HAMILTON STANDARD PROPELLERS

If so, you will be interested to know that Southwest Airmotive has established a complete inspection and specialized engineering department set-up to provide the finest facilities available for the solution of any aircraft, accessory, instrument or engine operation or maintenance problem besetting the airplane owner and operator.

LYCOMING *Engines*

TEXACO

MAGNAFLUX

HUMBLE

Our consultation covering problems that require engineering and scientific inspection costs nothing. Let our experts analyze your operating troubles and give you an estimate on costs.

CAMBRIDGE INSTRUMENT CO INC

BENDIX SCINTILLA

SOUTHWEST AIRMOTIVE COMPANY

RANGER AIRCRAFT ENGINES

VEGA

Stromberg
CARBURETORS

menasco

Pioneer

Lycoming Controllable Propellers

PRATT & WHITNEY U.S.A. DEPENDABLE ENGINES

LOVE FIELD DALLAS, TEXAS

WRIGHT AIRCRAFT ENGINES

"Airline Maintenance for the Private Owner"

FREEDMAN-BURNHAM ENGINEERING CORP.

ADJUSTABLE PITCH PROPELLERS

LOCKHEED

PESCO

LIBRARY OF CONGRESS
WASHINGTON, D C 26-C

THE DEFENSE IS ALERT

IN anti-aircraft defense, threatening airplanes must be located with utmost speed. To solve this problem Sperry has developed the Sound Locator or "mechanical ear" by which the defense can determine the location of on-coming airplanes and their direction of flight.

Once located, they are soon illuminated by the piercing shaft of the 800 million beam candlepower searchlight, which was developed by Sperry to meet anti-aircraft defense requirements in the last World War and has been continually improved and produced by Sperry ever since.

Still another Sperry device, the Universal Director, working many times faster than the human mind, automatically calculates the firing data and electrically transmits it to the waiting anti-aircraft guns.

Truly, American defense is on the alert.

SPERRY GYROSCOPE
COMPANY INCORPORATED
SPERRY
BROOKLYN, NEW YORK

Other Sperry products include the Gyro-Horizon, Directional Gyro, Gyropilot, and Automatic Radio Direction Finder